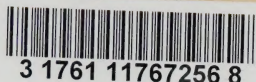
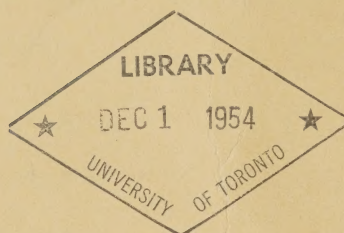


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Canada, Labour, Dept. of. Economics  
and Research Branch



**SURVEY OF INDUSTRIAL REQUIREMENTS  
FOR  
PROFESSIONAL PERSONNEL  
1952 - 1956**




**THE ECONOMICS AND RESEARCH BRANCH  
DEPARTMENT OF LABOUR**

**IN CO-OPERATION WITH**

**EXECUTIVE & PROFESSIONAL DIVISION  
NATIONAL EMPLOYMENT SERVICE  
UNEMPLOYMENT INSURANCE COMMISSION**

**OTTAWA, CANADA.**

**OCTOBER, 1954.**



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## Scope and Method of Survey

In June, 1954 a questionnaire survey was made of the requirements of Canadian industry for professionally-trained personnel. This survey covered a sample of 774 employers, who together employed over 22 per cent of all non-agricultural paid workers in Canada.

A knowledge of the current and prospective demand for professionally-trained personnel is useful in the planning of production and development in both the private and public sectors of the economy. This knowledge is also helpful for persons entering universities who have to make a choice of professions in the light of future employment opportunities.

The purpose of the survey was to obtain from employers estimates of their probable requirements for different categories of professional workers for each of the years 1954, 1955, and 1956. From this data, an indication of the change in the demand for such personnel may be obtained for the period 1952 to 1956. Employers were also asked to indicate the main factors causing an increase or decrease in their requirements in each year and to specify some of the recruitment problems they had been facing and would probably encounter in the next few years.

The employers covered in the survey were initially selected according to the following criteria:

- (1) All firms employing more than 500 workers.
- (2) All firms employing more than 200 workers in a selected list of industries where the nature of the operations was such as to require a greater-than-average number of professional employees.

The initial list was then checked against the returns of surveys previously conducted in 1951 and 1949, so that any other firms found to



be employers of a significant number of professional persons might be added. This list was then distributed to the regional offices of the National Employment Service which were asked to survey each firm and to obtain additional reports from any other firms that they considered to be large employers of professionally-trained personnel.

The 774 private employers, whose returns form the basis of the data tabulated, employed over 17,000 professionally-trained persons in January of 1954; of these approximately 12,000 were engineers, about 3,000 were physical scientists, and slightly more than 2,000 were graduates of social science, business and general arts courses. It is estimated that the survey tabulations are based on firms employing slightly more than one-third of all engineers in Canada and approximately one-tenth of all physical scientists. A higher proportion of physical scientists than of engineers is employed by government and educational institutions.

In interpreting and using the results of this survey, it should be noted that the data refer only to the demand of private industry for the different categories of professional personnel. No attempt was made to obtain similar information from provincial and federal governments or from educational institutions, or to estimate probable employment trends in the various occupational groups among the self-employed. The importance of the demand sectors that were not surveyed varies greatly from one profession to another, so that the validity of the present data as an indication of general demand trends will also vary considerably for the different professions.

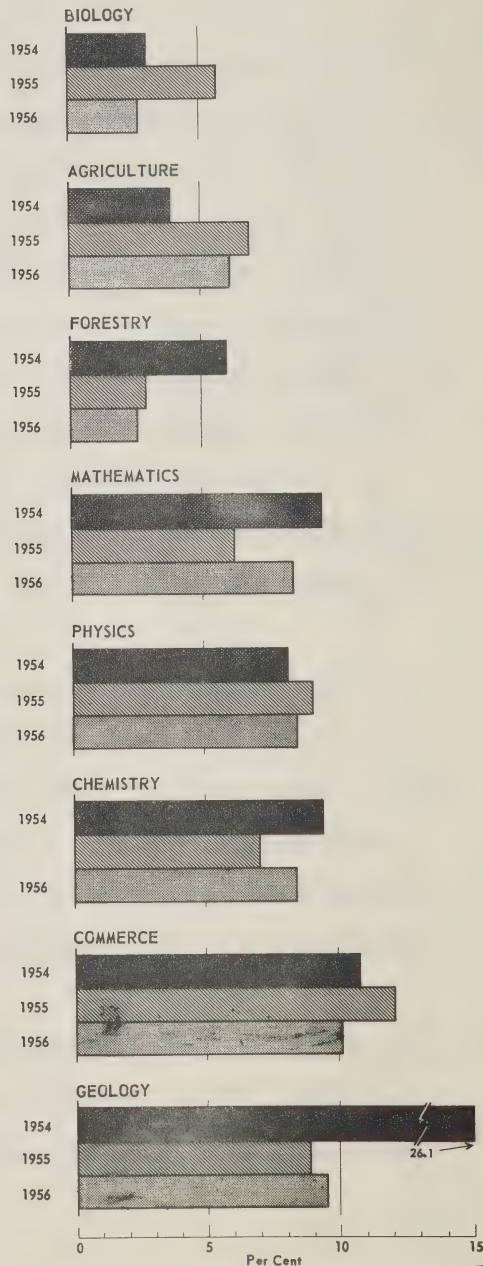
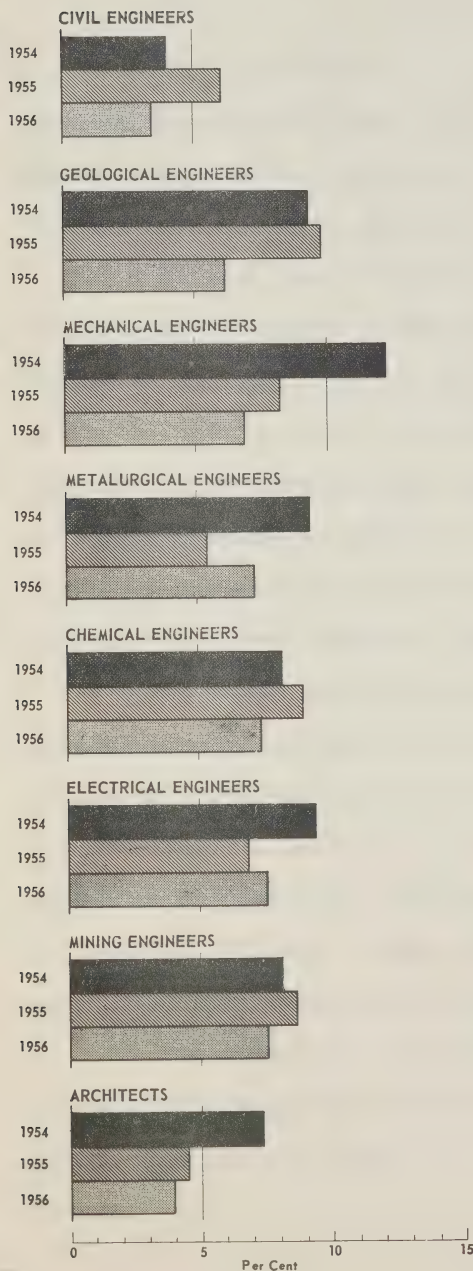
For convenience, the highlights of the analysis are summarized at the beginning of the report. The summary is followed by (1) a discussion of the factors affecting requirements for professionally trained persons and the recruitment difficulties of employers in this connection; (2) an analysis of requirements for each profession included in the survey, prepared on the basis of data appearing in tabular form in the appendixes; and (3) an analysis of requirements by industry and by size of firm.

A copy of the questionnaire has been included in the appendix for reference purposes.





# A FORECAST OF ANNUAL INCREASE IN DEMAND FOR PROFESSIONALLY TRAINED PERSONNEL EXPRESSED AS A PERCENTAGE OF THE NUMBER EMPLOYED AT JANUARY 1st 1954, 1955 AND 1956





### Summary

The requirements of private employers for most types of professionally-trained personnel included in the present survey was high during 1952 and 1953 and indications are that this trend will continue, although requirements may be somewhat less during 1954, 1955 and 1956.

The most important reason for the favourable demand situation - from the point of view of prospective employers - was general business expansion in the firms covered by the survey. Resource and new product development and improvement in production methods or services were also contributing, but less important, factors. Expansion of research activities and demands arising out of production for defence purposes were considered the least important factors. The influence of each factor, however, varies from industry to industry.

The survey reveals that some firms experienced a slackening of business activity during 1952 and 1953 and that some anticipated a similar development during the years 1954, 1955 and 1956. The total number of firms in this category is small and it is therefore difficult to determine any pattern in this connection. The survey indicates, however, that the smallest firms (50 employees or less) showed a greater tendency to expect some contraction of business than the others.

The professions in greatest demand during 1952 and 1953 are also expected to be in greatest demand during 1954, 1955 and 1956. Engineers, notably mechanical and electrical, have been and continue to be in strong demand.



In the arts and science fields, the results of the survey point to exceptionally good employment opportunities in chemistry and in commerce or business administration.

The firms surveyed considered that the most important reason for the difficulties they experienced in obtaining professional personnel during 1952 and 1953 was the insufficient number of professionally-trained persons available. This was also expected to be the main cause of the shortage during 1954, 1955 and 1956, although this factor was not expected to be as important in the future as it had been in the past. Other reasons given for possible recruitment difficulties, but considered of less importance, were the unsatisfactory nature of applicants and salary expectations beyond what firms were prepared to offer.

## I

### FACTORS AFFECTING THE DEMAND FOR PROFESSIONAL PERSONNEL AND PROBLEMS OF RECRUITMENT

The questionnaire used in the present survey attempted to ascertain the factors influencing the demand for professional personnel during 1952 and 1953 and those likely to do so during 1954, 1955 and 1956. It also sought to disclose the kind of recruitment difficulties firms encountered in the past and expected in the future.

The information discussed in the following paragraphs, is presented in tabular form in the appendix to this report.

#### Factors Contributing to an Increase in Demand During 1952 and 1953

Employers to whom the questionnaire was sent were asked to indicate, in order of importance, the main factors responsible, for an increase or decrease in their requirements for professionally-trained personnel during the years 1952 and 1953.

The following reasons were listed in the questionnaire as important in determining the number of professional people needed and employers were requested to number them in order of importance: (1) general business expansion; (2) resource or new product development; (3) improved production methods or services; (4) expansion of research activities; and (5) defence production activities. Because of the number of incompleted returns, and the difficulties of weighting this section of the questionnaire the first three choices only were analyzed in each case.

Table 29 shows that 321 firms (among which were all the size categories) or nearly half of the 774 covered, gave general expansion of their business as the most important reason for an increase in their demand for professional staff; an additional 46 firms rated it as the second most important reason.

The other reasons listed were much less frequently indicated as the causes of increase in the employment of professionally-trained personnel in 1952 and 1953. Resource and new product development was rated first by 32 firms and second by 64. Improved production methods or services was given first place by 33 firms and second place by 60 firms. Two of the reasons listed, expansion of research activities and an increase in the defence production program, were each selected as the most important reason by 18 firms, and the second most important by 35 and 31 firms respectively.

The data in Table 29 indicate that certain industries were affected to a greater degree than others by the reasons listed as factors contributing to an increase in demand for professional personnel. The requirements of the chemical and petroleum industries and the forestry, paper and iron and steel products industries, for example, were affected to a greater degree than those of other industries included in the table.

#### Factors Contributing to an Increase in Demand During 1954, 1955 and 1956

The factors affecting demand for the three year period 1954, 1955 and 1956 were expected to be similar to those contributing to an increasing demand in the two years 1952 and 1953. The firms surveyed expected that the most important single factor contributing to increased demand for professional personnel would continue to be general business expansion. (See Table 30). This reason was rated first by 292 of the 774 firms and second by 44.



Resource and new product development and improved production methods were rated first by 39 and 38 firms and second by 80 and 51 firms respectively. Expansion of research activities was given first rating by 21 firms and second rating by 31 firms. Defence production was considered to be the least likely of the five reasons listed to result in an increase in the demand for professional personnel during 1954, 1955 or 1956. Only six of the firms rated this reason first; eight rated it second.

Again it may be observed that the reasons listed affect the demand for professional personnel more consistently in some industries than in others. All the reasons seem more generally applicable to the chemical, petroleum, forestry, paper and iron and steel products industries than to the other industries covered. Furthermore, the implication is that certain industries are giving more attention than others to, for example, research activities and improved methods of production and are consequently increasing their demand for professionally-trained personnel to a greater extent.

#### Factors Contributing to a Decrease in Demand During 1952 and 1953

Firms were requested to indicate, in order of importance to them, the reasons causing a decrease in their requirements for professional personnel in 1952 and 1953. (See Table 31). In all, 20 of the 774 firms covered indicated that slackening activity in their business had been the cause of a decrease in their demand for professional staff. No one type of industry stands out as being especially influenced by this factor, but according to the results of the present survey, firms with 50 or fewer employees were most likely to be affected. Other factors listed in the questionnaire as possible causes for declines in the need for professional personnel were, declining rate of technological innovation or resource development, defence contracts declining, and better utilization of pro-

Table 31 shows that the number of firms that selected these as important contributing causes was not large enough to affect the overall demand appreciably.

Factors Expected to Contribute to a Decrease in Demand During 1954, 1955 and 1956

Twenty-four, or approximately three per cent of the 774 firms, indicated that they expected slackening activity in their business to be the main cause of a decrease in their demand for professional staff during 1954, 1955 and 1956. (See Table 32). Five firms rated this the second most important reason. Slackening business activity was not rated highest by any one specific type of industry but eight of the 24 firms giving this cause first place had 50 or fewer employees.

Declining rate of technological innovation or resource development was considered the reason most likely to account for a decrease in the need for professional personnel by three firms; one firm considered it to be the second most important reason. Similarly, a decline in defence contracts was given as the primary reason by seven firms and as the second reason by five. Reduction of research was rated first by one firm and second by three. Two firms felt that the most important reason for a reduction in professional staff during 1954, 1955 and 1956 would be the better utilization of the current staff; this was considered by one firm to be the second most important factor.

Recruitment Difficulties in 1952 and 1953

During 1952 and 1953, nearly 10 per cent of the firms reporting experienced difficulty in obtaining mechanical engineers. (See Table 33). Electrical engineers were reported as the second most difficult to obtain.

It should be borne in mind, however, that the purpose of the present survey was to determine the demand of industrial firms for professional people; consequently the sources of the greatest probable demand for some types of professional personnel are more adequately covered than others.

In professions other than engineering, results of the survey indicate that chemists, followed by graduates in commerce, were most in demand by industrial firms during 1952 and 1953. It is evident from Table 33 however, that for each of the professions listed some difficulty was experienced in obtaining the personnel required.

#### Recruitment Difficulties Expected in 1954, 1955 and 1956

The results of the survey indicate that recruitment difficulties during 1954, 1955 and 1956, will probably be quite similar to those of 1952 and 1953, but somewhat less marked. (See Table 34). In general, indications are that the demand for engineers will continue but will vary from branch to branch and be more pronounced in some fields than others. For the firms included in the survey, difficulties are expected to be greatest in the recruitment of mechanical engineers, followed by electrical, mining and metallurgical and civil engineers.

#### Reasons for Inadequate Supply During 1952 and 1953

Firms were requested to state the reasons why they had experienced difficulties in obtaining employees with professional training during 1952 and 1953. Many firms reported more than one reason. The percentages indicated are therefore not additive. Twenty-four per cent of the 774 firms covered reported that demand could not be satisfied because the number of professionally-trained personnel available was insufficient. (See Table 35).



Twelve per cent of the firms reported that the shortage was due to the fact that the applicants were unsatisfactory. In eight per cent of the firms, positions were left unfilled because the salary expectations of the applicants were higher than those paid by the firm.

It is to be expected, of course, that the shortage of professionally-trained personnel should be greatest in those industries utilizing the services of the professions that are in greatest demand and this fact is borne out by the information in Tables 33 and 34. For example, industries utilizing the services of mechanical and electrical engineers, by and large, put considerable emphasis on shortages as an important contributing factor to their difficulties in securing professional personnel.

The highest percentage of unsatisfactory applicants was reported in the chemical and petroleum products industries. This may result from the need for further specialized training within this field and the relative shortage of facilities for the training of petroleum engineers.

#### Position in 1954, 1955 and 1956

Shortages of professional personnel are expected to be less marked in 1954, 1955 and 1956 than they were in 1952 and 1953. (See Table 36). Nineteen per cent of the firms reporting expected a shortage of professionally-trained personnel in 1954 through 1956, compared with 24 per cent in 1952 and 1953.

Fewer firms, likewise, expected recruitment difficulties during 1954-1956 because of the unsatisfactory nature of applicants or because of the salary expectations of professionally-trained personnel.

## II

### ANALYSIS BY PROFESSION

On the basis of the present survey, employment of professionally-trained personnel as a whole is expected to increase during 1954 - 1956. (See Appendix Table 1). For the engineering group as a whole, the average annual increases were expected to be as follows:

1954 -	8.6	per	cent
1955 -	7.9	"	"
1956 -	6.1	"	"

In this group, the greatest increases expected were in the employment of mechanical engineers, followed by geological engineers. Employment of civil engineers was expected to show the smallest increase.

<u>Engineering Professions</u>	Average Annual Increase
	<u>Expected 1954-56</u> (per cent)
Mechanical.....	9.1
Geological.....	8.4
Chemical.....	8.2
Mining.....	8.1
Electrical.....	8.0
Metallurgical.....	7.3
Civil.....	4.6

In absolute figures, the largest increases forecasted were in the employment of mechanical and electrical engineers.

For the non-engineering professions, the largest percentage employment increases were forecasted for pharmacists (chiefly in the chemical industry), geologists and graduates in commerce.

The figures below, however, should be examined in the light of the fact that the survey's coverage of pharmacists and of geologists was relatively small.

<u>Field of Specialization</u>	<u>Average Annual Increase Expected 1954-56 (per cent)</u>
Pharmacy.....	15.8
Geology.....	14.8
Commerce.....	11.0
Physics.....	8.6
Chemistry.....	8.5
Mathematics.....	8.0
Agriculture.....	5.6
Architecture.....	5.3
Chartered Accountancy.....	4.1
Forestry.....	3.8

In absolute figures, the largest increases were forecasted in the employment of commerce graduates.

The current employment, future demand and recruitment difficulties of each of the professions covered in the survey are analysed below.



## Chemical Engineering and Chemistry

### Current Employment

It is estimated that between 3,000 and 4,000 chemical engineers and between 5,000 and 6,000 chemists are employed in Canada. The present survey covers 1,557 chemical engineers and 760 chemists. The difference in the ratio of coverage for each group results from the fact that a considerable number of chemists are employed by institutions not included in the survey.

The major industrial employers of chemical engineers and chemists, according to the present survey are:

	Percentage of the Chemical <u>Engineers Covered</u>	Percentage of the Chemists <u>Covered</u>
Chemical and Petroleum Products..	30	47
Pulp and Paper Products.....	16	15
Non-Ferrous Metal Products.....	15	10
Other Industries.....	<u>39</u>	<u>28</u>
Total.....	100	100

Firms with more than 400 employees accounted for over 75 per cent of the chemical engineers and for 73 per cent of the chemists covered.

### Future Employment Outlook

On the basis of the present survey, total employment of chemical engineers and chemists is expected to increase as follows:

	<u>Chemical Engineers</u>	<u>Chemists</u>
	(per cent)	
During 1954	8.1	7.5
" 1955	9.0	7.1
" 1956	7.4	8.9

Employers in the four industries employing the largest number of chemical engineers expected the following increases:

<u>Industry</u>	Number Employed in Survey Sample <u>at Jan. 1, 1954</u>	Annual Increase		
		1954	1955	1956
		(Per Cent)		
Chemical and Petroleum Industry.	467	6.6	6.4	6.0
Pulp and Paper Products.....	255	4.7	7.9	5.9
Non-Ferrous Metal Products.....	239	4.2	8.4	5.6
Mining, Quarrying & Oil Wells...	136	26.5	20.3	17.3

The high percentages in mining, quarrying and oil wells may be attributed partly to the fact that coverage in this group is relatively small and partly to the expected expansion in oil exploration and production activities.

The largest increases in employment of chemical engineers were forecasted by firms employing from 400 to 800 employees.

In the three industries employing the largest number of chemists the following increases were expected:

<u>Industry</u>	Number Employed in Survey Sample <u>at Jan. 1, 1954</u>	Annual Increase		
		1954	1955	1956
		(Per Cent)		
Chemical and Petroleum Products.	357	11.2	10.0	8.5
Pulp and Paper Products.....	117	5.1	4.9	3.1
Non-Ferrous Metal Products.....	78	12.8	11.4	9.2

The relatively high increases forecasted for the non-ferrous metal products industry may be accounted for, in part, by the fact that coverage of this group was comparatively small. In terms of absolute numbers, the chemical and petroleum products industry is by far the most important.

The largest increases in employment of chemists were expected by firms employing over 1,600 employees.

#### Recruitment Problems

A total of 24 firms expected difficulties in recruiting chemical engineers or chemists in future. Eight of these firms were in the chemical and petroleum industry and six in the pulp and paper products industry. The largest number of firms expecting future difficulties employed from 400 to 800 persons.

For further details on recruitment difficulties by industry, see Section III of this report.



## Civil Engineering

### Current Employment

It is estimated that between 8,000 and 9,000 civil engineers are employed in Canada; the present survey covers 2,200. This relatively small coverage is partly due to the fact that many civil engineers are self-employed and that perhaps an even larger number are employed by the federal and provincial governments. None of these groups were included in the survey.

The major industrial employers of civil engineers, according to the present survey, are:

<u>Industry</u>	<u>Percentage of the Civil Engineers Covered</u>
Services.....	25
Transportation & Communication.....	21
Construction.....	20
Other Industries.....	<u>34</u>
Total.....	100

A large number of civil engineers are employed in civic administration and by consulting firms and this may account for the high percentage recorded by the service industry where these are classified.

About one-third of the civil engineers covered were in firms with more than 3,200 employees.

### Future Employment Outlook

Total employment of civil engineers, on the basis of the present survey, is expected to increase as follows:

During 1954 - 4.0 per cent  
" 1955 - 6.2 " "  
" 1956 - 3.5 " "

These rates of increase are considerably lower than those for engineers as a whole (8.6, 7.9 and 6.1 per cent respectively). Civil engineers, however, have been in larger supply than many other engineering professions in Canada and employers have therefore been able to supply their needs in this field more readily. Their future requirements, therefore, probably do not include any backlog of unfilled vacancies, as is the case for some of the other engineering occupations.

In the industries with the largest number of civil engineers, their employment is expected to increase as follows:

<u>Industry</u>	Number Employed in Survey Sample at Jan. 1, 1954	Annual Increase		
		1954	1955	1956
		(per cent)		
Services.....	550	4.4	9.6	5.4
Transportation & Communication...	463	2.6	2.9	0.2
Construction.....	429	4.2	7.4	4.2

Firms employing from 200 to 1,600 employees expected the largest increases in the employment of civil engineers.

#### Recruitment Problems

A total of 24 firms reported difficulty in obtaining civil engineers in 1952 and 1953. Seven of these firms were in the services industry, five in construction and four in the iron and steel products industry.

Six of the firms that experienced difficulty in recruiting civil engineers employed between 200 and 400 persons; five employed between 1,600 and 3,200 each.

Difficulties in recruiting civil engineers in 1954-1956 were expected by a total of 13 firms. Four of these were in the services industry, two in construction and two in the iron and steel products industry.

Four of the firms expecting future recruitment difficulties had between 200 and 400 employees each.

Section III of this report contains further details on recruitment problems, by industry.



## Electrical Engineering

### Current Employment

It is estimated that between 6,500 and 7,500 electrical engineers are employed in Canada; 3,012 of these are covered by the present survey.

The major industrial employers of electrical engineers, according to the present survey, are:

<u>Industry</u>	<u>Percentage of the Electrical Engineers Covered</u>
Electrical Apparatus & Supplies.....	37
Transportation & Communication.....	20
Public Utilities.....	13
Other Industries.....	<u>30</u>
Total.....	100

Fifty-three per cent of the electrical engineers covered were in firms with more than 3,200 employees.

### Future Employment Outlook

On the basis of the present survey, total employment of electrical engineers is expected to increase as follows:

During 1954	- 9.4	per cent
" 1955	- 6.9	" "
" 1956	- 7.6	" "

In the three industries employing the largest number of electrical engineers, firms expected the following increases:

<u>Industry</u>	Number Employed in Survey Sample at Jan. 1, 1954	Net Annual Increases		
		1954	1955	1956
		(Per Cent)		
Electrical Apparatus & Supplies	1,116	12.4	6.0	5.3
Transportation & Communication.	601	8.3	10.6	3.3
Public Utilities.....	394	4.8	4.4	2.6

Because of the difficulties in predicting future requirements in these industries, the lower percentages indicated for 1956 may be conservative. A few public utility firms expected a net decrease in the employment of electrical engineers in the next two years.

Firms with more than 3,200 employees forecasted the largest increase in the employment of electrical engineers.

#### Recruitment Problems

Fifty-seven of the 774 firms covered by the survey reported difficulties in obtaining electrical engineers in 1952 and 1953. Of these, 18 were in the electrical apparatus and supplies industry, seven in public utilities and five in transportation and communication. The largest number of firms expecting future difficulties in the recruitment of electrical engineers employed more than 1,600 persons.

Further details on recruitment problems by industry may be found in Section III of this Report.

## Geology and Geological Engineering

### Current Employment

Between 1,000 and 2,000 geologists and geological engineers are estimated to be employed in Canada; the present survey covers 268 geologists and 281 geological engineers.

The major industrial employers of geologists and geological engineers, according to the present survey, are:

<u>Industry</u>	<u>Percentage of the Geologists Covered</u>	<u>Percentage of the Geological Engineers Covered</u>
Mining, Quarrying & Oil Wells	88	62
Non-Ferrous Metal Products..	5	16
Other Industries.....	<u>7</u>	<u>22</u>
Total.....	100	100

Sixty-six per cent of the geologists were employed in firms with 200 to 800 employees and 32 per cent of the geological engineers were in firms with 1,000 to 1,600 employees.

### Future Employment Outlook

The expected increases in the employment of geologists and geological engineers, on the basis of the present survey, are as follows:

	<u>Geologists</u> (Per Cent)	<u>Geological Engineers</u>
During 1954	26.1	9.3
" 1955	8.9	9.8
" 1956	9.5	6.2

In mining, quarrying and oil wells, where the largest number of geologists and geological engineers are employed, the following increases in employment are expected:

<u>Industry</u>	Number Employed in Survey Sample at Jan. 1, 1954	Annual Increase		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Geologists.....	235	28.9	9.3	9.1
Geological Engineers.	175	8.6	9.0	5.8

#### Recruitment Problems

Only four firms reported past difficulties in recruiting geologists and geological engineers, or expected future problems in this connection. The data on the expected demand for these professions, however, (see also appendix, Table 1) indicate that employers may experience more difficulties in 1954, 1955 and 1956 than they appear to anticipate.



## Mechanical Engineering

### Current Employment

It is estimated that between 7,000 and 8,000 mechanical engineers are employed in Canada, of which the present survey covers 3,131.

The major industrial employers of mechanical engineers, according to the present survey, are:

<u>Industry</u>	<u>Percentage of the Mechanical Engineers Covered</u>
Transportation Equipment.....	21
Iron and Steel Products.....	19
Electrical Apparatus & Supplies	13
Forestry & Pulp & Paper Products	8
Other Industries.....	<u>39</u>
Total	100

Firms with over 1,600 employees accounted for more than 52 per cent of the mechanical engineers covered.

### Future Employment Outlook

Employment of mechanical engineers in industry on the basis of the present survey, was expected to increase as follows:

During 1954 -	12.2 per cent
" 1955 -	8.2 " "
" 1956 -	6.9 " "

The four industries employing the largest number of mechanical engineers expected the following employment increases:

<u>Industry</u>	Number Employed in Survey Sample at Jan. 1, 1954	Annual Increase		
		1954	1955	1956
		(Per Cent)		
Transportation Equipment.....	673	26.9	5.6	4.3
Iron & Steel Products.....	599	2.7	10.4	10.8
Electrical Apparatus & Supplies	396	4.8	6.5	6.1
Forestry & Pulp&Paper Products.	255	10.2	12.5	6.3

The largest increases in the employment of mechanical engineers were forecasted by firms with more than 3,200 employees.

#### Recruitment Problems

Difficulties were experienced more frequently in the recruitment of mechanical engineers than of any other profession covered in the survey - a total of 72 firms reported problems for this branch.

Fifteen of the firms reporting difficulty in recruiting mechanical engineers had between 400 and 800 employees and twelve had more than 3,200.

With respect to the years 1954-1956, a total of 44 firms expected difficulty in obtaining mechanical engineers. Ten of these firms were in the iron and steel products industry and nine in the transportation equipment industry. Nine of the firms expecting recruitment difficulties had between 400 and 800 employees and nine had more than 3,200.

Further details on recruitment difficulties by industries are given in Section III of this report.

## Metallurgical and Mining Engineering

### Current Employment

The present survey covers 410 metallurgists, or roughly one-third of the total number estimated to be employed in Canada. Employment of mining engineers is estimated at between 2,500 and 3,500 of which 604 are covered in this analysis.

The major employers of metallurgists and mining engineers, according to the present survey are:

<u>Industry</u>	<u>Percentage of the Metallurgists Covered</u>	<u>Percentage of the Mining Engineers Covered</u>
Mining, Quarrying and Oil Wells....	-	56
Non-ferrous Metal Products.....	43	23
Iron and Steel Products.....	27	-
Other Industries.....	<u>30</u>	<u>21</u>
Total.....	100	100

Of the metallurgists covered, over 51 per cent were in firms with more than 3,200 employees; 82 per cent of the mining engineers were in firms with more than 400 employees.

### Future Employment Outlook

On the basis of the present survey, the employment of metallurgists and mining engineers in industry is expected to increase as follows:

	<u>Metallurgists</u>	<u>Mining Engineers</u>
	(Per Cent)	
During 1954	9.3	8.1
" 1955	5.4	8.7
" 1956	7.2	7.6

The following increases were expected in the three industries employing the largest number of metallurgists:

<u>Industry</u>	Number employed in Survey Sample at Jan. 1, 1954	Annual Increase		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Non-Ferrous Metal Products...	176	8.0	7.4	7.4
Iron and Steel Products.....	110	6.4	10.3	11.6
Mining, Quarrying and Oil Wells	34	29.4	6.8	4.3

The large increase expected in mining, quarrying and oil wells may be attributed partly to the fact that coverage in this group is relatively small and partly to the expected expansion in oil exploration and production activities.

In the industries employing the largest number of mining engineers the following employment increases are expected:

<u>Industry</u>	Number employed in Survey Sample at Jan. 1, 1954	Annual Increase		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Mining, Quarrying and Oil Wells	341	12.0	11.0	9.2
Non-ferrous Metal Products....	137	2.9	1.0	4.9

Firms with more than 3,200 employees expect the largest increases in the employment of metallurgists and those with 1,600 to 3,200 employees expect the largest increases in the employment of mining engineers.

#### Recruitment Problems

Difficulties in obtaining metallurgical and mining engineers were reported by 24 firms; 12 of these were in the mining, quarrying and oil well industry and four in the non-ferrous metal products industry.



With regard to the years 1954 - 1956, a total of 20 firms expected difficulty in the recruitment of metallurgical or mining engineers. Ten of these firms were in the mining, quarrying and oil wells industry.

Most of the firms that reported recruitment difficulties in the past or expected them in the future employed from 400 to 800 persons.

Further details concerning recruitment problems by industry are contained in Section III of this report.

## Architecture

### Current Employment

The present survey covers 243 architects or about one-eighth of the total number employed in Canada. The figure for this profession is low because a large proportion of graduates in architecture are self-employed or employed in institutions not covered by this survey.

The major industrial employers of architects, according to the present survey are:

<u>Industry</u>	<u>Percentage of the Architects Covered</u>
Services.....	71
Transportation & Communication.....	16
Other Industries.....	<u>13</u>
Total.....	100

Firms with less than 100 employees accounted for 51 per cent of the total employment of the architects covered.

### Future Employment Outlook

Employment of architects in industry, on the basis of the present survey, was expected to increase as follows:

During 1954	=	7.4	per cent
"	1955	=	4.6 " "
"	1956	=	4.0 " "

The following changes are expected in the two industries employing the largest number of architects:

<u>Industry</u>	<u>Number Employed in Survey Sample at Jan. 1, 1954</u>	<u>Annual Change</u>		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Services.....	172	+ 9.9	+ 6.4	+ 5.5
Transportation & Communication	38	-	- 2.6	-

The expected increase in the service industry may be partly attributed to the high level of home construction. It should be noted, however, that the transportation and communication industry expected a decrease in the employment of architects in 1955.

The largest increases in the employment of architects were expected by firms with less than 50 employees.

#### Recruitment Problems

A total of nine firms reported difficulties in obtaining architects during the past two years. Eight of these firms were in the services industry and seven had less than 50 employees. Only three firms expected difficulties in recruiting architects during 1954-1956.

For further details on recruitment problems by industry, see Section III of this report.

## Agriculture

### Current Employment

It is estimated that between 6,000 and 7,000 graduates in agriculture are employed in Canada. Only 281 of these are covered in this analysis. This small coverage is perhaps due to the large proportion employed in government services in Canada.

The major industrial employers of graduates in agriculture, according to the present survey, are:

<u>Industry</u>	<u>Percentage of the Graduates in Agriculture Covered</u>
Chemical Products.....	25
Food Products.....	20
Trade (Wholesale & Retail).....	17
Other Industries.....	<u>38</u>
Total.....	100

Firms with more than 3,200 employees accounted for 23 per cent of the graduates in agriculture covered.

### Future Employment Outlook

On the basis of the present survey, the industrial employment of graduates in agriculture was expected to increase as follows:

During 1954 - 3.9 per cent
" 1955 - 6.9 " "
" 1956 - 6.1 " "



In the three industries employing the largest number of agricultural graduates, the following increases in employment are expected:

<u>Industry</u>	<u>Number Employed in Survey Sample at Jan. 1, 1954</u>	<u>Annual Increase</u>		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Chemical Products.....	69	1.0	12.8	7.6
Food Products.....	56	3.6	5.2	9.9
Trade (Wholesale & Retail)....	49	8.2	13.2	6.7

The wide variation in the above percentages is perhaps due to the relatively small coverage in this group of industries. Firms with 800 to 1,600 employees expected the largest increases in the employment of graduates in agriculture.

#### Recruitment Problems

Difficulties in obtaining graduates in agriculture during 1952 and 1953 were experienced by eight of the firms covered; only four expected difficulties during 1954-1956.

Further details on recruitment problems by industry are contained in Section III of this report.

## Biology

### Current Employment

It is estimated that between 1,000 and 1,500 graduates in biology are employed in Canada. Because of the large number of biologists employed in non-industrial institutions, which were not covered in the present survey, only 68 are included in this analysis.

The major industrial employers of biologists, according to the present survey, are:

<u>Industry</u>	<u>Percentage of the Biologists Covered</u>
Services.....	71
Chemical Products.....	19
Other Industries.....	<u>10</u>
Total.....	100

About 40 per cent of the biologists covered were in firms with less than 50 employees.

### Future Employment Outlook

Employment of biologists in industry, on the basis of the present survey, was expected to increase as follows:

During 1954 -	3.0	per cent
" 1955 -	5.7	" "
" 1956 -	2.7	" "

The two industries employing the largest number of graduates in biology expect the following increases:

<u>Industry</u>	<u>Number Employed in Sample Survey at Jan. 1, 1954</u>	<u>Annual Increase</u>		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Services.....	48	2.1	4.0	4.0
Chemical Products.....	13	7.7	14.3	-

The relatively large increase expected in the chemical products industry for 1955 may partly be attributed to the small base figure.

The firms expecting increases were distributed fairly evenly among the various size classifications included in the survey.

#### Recruitment Problems

Only two firms reported difficulties in obtaining biologists in 1952 and 1953 and none expected difficulties in 1954-1956.

## Commerce or Business Administration

### Current Employment

The present survey covers 1,924 of the 9,000 to 11,000 commerce graduates estimated to be employed in Canada.

The major industrial employers of graduates in commerce, according to the present survey, are:

<u>Industry</u>	<u>Percentage of the Commerce Graduates Covered</u>
Finance, Insurance & Real Estate.....	15
Trade (Wholesale and Retail).....	13
Transportation & Communication.....	11
Transportation Equipment.....	9
Other Industries.....	<u>52</u>
Total.....	100

Firms with more than 200 employees accounted for 87 per cent of commerce graduates covered.

### Future Employment Outlook

On the basis of the present survey, employment of commerce graduates in industry was expected to increase as follows:

During 1954 - 10.8 per cent
" 1955 - 12.1 " "
" 1956 - 10.1 " "



Employment of commerce graduates, in the three industries employing the largest numbers, was expected to increase as follows:

<u>Industry</u>	<u>Number Employed in Survey Sample at Jan. 1, 1954</u>	<u>Annual Increase</u>		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Finance, Insurance & Real Estate	292	15.4	15.1	11.1
Trade (Wholesale & Retail).....	258	19.4	23.0	21.6
Transportation & Communication.	207	5.3	4.6	3.1

The largest increases were expected in firms with 400 to 3,200 employees.

#### Recruitment Problems

Difficulties in obtaining commerce graduates in 1952 and 1953 were reported by 18 firms. Of these, six were in the finance, insurance and real estate industry and six were in the services industry. Ten firms expected difficulties in recruiting commerce graduates in 1954 to 1956; three of these were in the finance, insurance and real estate industry.

The largest number of firms reporting recruitment difficulties in the past or expecting them in future employed less than 50 persons each.

Further details on recruitment problems by industry are contained in Section III of this report.

## Chartered Accountancy

### Current Employment

It is estimated that between 5,500 and 6,500 chartered accountants are employed in Canada. The present survey covers 507.

The major industrial employers of chartered accountants, according to the survey, are:

<u>Industry</u>	<u>Percentage of the Chartered Accountants Covered</u>
Services (chiefly Auditing Firms).....	87
Other Industries.....	<u>13</u>
Total.....	100

Firms with 100 to 200 employees accounted for 71 per cent of total employment of the chartered accountants covered.

### Future Employment Outlook

The following increases in the employment of chartered accountants in industry are expected, on the basis of the present survey:

During 1954 - 2.8 per cent
" 1955 - 5.4 " "
" 1956 - 4.0 " "

In the services industry, where most of the chartered accountants were employed, the following increases were expected:

<u>Industry</u>	<u>Number Employed in Survey Sample at Jan. 1, 1954</u>	<u>Annual Increase</u> <u>1954 1955 1956</u> (Per Cent)		
Services.....	440	2.0	3.8	3.9

The largest increases were expected in firms employing from 100 to 200 persons.

Recruitment Problems

No difficulties in recruiting chartered accountants were reported by the firms covered in this survey.

## Forestry

### Current Employment

It is estimated that between 2,000 and 2,500 foresters and forestry engineers are employed in Canada; of these, 356 are included in the present survey.

The major industrial employers of foresters and forestry engineers, according to this survey, are:

<u>Industry</u>	<u>Percentage of the Foresters and Forestry Engineers Covered</u>
Forestry and Pulp and Paper Products.....	94
Other Industries.....	<u>6</u>
Total.....	100

About 49 per cent of the total employment of the foresters and forestry engineers covered was in firms with more than 3,200 employees.

### Future Employment Outlook

On the basis of the present survey, the following increases were expected in the employment of foresters and forestry engineers in industry.

During 1954 - 5.9 per cent
" 1955 - 2.9 " "
" 1956 - 2.6 " "



In the forestry, pulp and paper products industry, where the largest number of these engineers are employed, the following increases were expected:

<u>Industry</u>	Number Employed in Survey Sample <u>at Jan. 1, 1954</u>	Annual Increase		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Forestry, Pulp and Paper Products	336	6.3	3.1	2.4

Firms employing more than 800 persons expected the largest increases.

#### Recruitment Problems

No difficulties were reported in the recruitment of foresters or forestry engineers.

For details on recruitment difficulties by industry, see Section III of this report.

## Mathematics

### Current Employment

Between 800 and 1,200 graduates in mathematics are estimated to be employed in Canada. The present survey covers 265.

The major industrial employers of graduates in mathematics, according to this survey, are:

<u>Industry</u>	<u>Percentage of the Mathematics Graduates Covered</u>
Finance, Insurance and Real Estate.....	66
Mining, Quarrying and Oil Wells.....	11
Other Industries.....	<u>23</u>
Total.....	100

Firms with 200 to 800 employees accounted for 59 per cent of the graduates in mathematics covered.

### Future Employment Outlook

The employment of mathematics graduates in industry was expected to increase as follows, on the basis of the present survey:

During 1954 - 9.5 per cent
" 1955 - 6.2 " "
" 1956 - 8.4 " "

The two industries where most of the mathematics graduates were employed expected the following increases:

<u>Industry</u>	<u>Number Employed in Sample Survey at Jan. 1, 1954</u>	<u>Annual Increase</u>		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Finance, Insurance and Real Estate	176	4.5	7.1	9.7
Mining, Quarrying and Oil Wells...	29	17.2	5.9	5.6

The relatively large increases expected in the mining, quarrying and oil wells industry may be partly attributed to the small base figure.

The largest increases in the employment of graduates in mathematics were expected by firms employing from 400 to 800 persons.

#### Recruitment Problems

Six firms reported difficulties in obtaining graduates in mathematics in 1952 and 1953; four of these were in the finance, insurance and real estate industry. Only two firms expected recruitment difficulties during 1954-1956.

Details on recruitment difficulties by industry are contained in Section III of this report.

## Pharmacy

### Current Employment

It is estimated that approximately 5,000 to 6,000 pharmacists are employed in Canada; the present survey covers 34%. This relatively small coverage is due to the fact that a large number of pharmacists are self-employed and therefore not included in the survey.

The major industrial employers of pharmacists, according to the survey, are:

<u>Industry</u>	<u>Percentage of the Pharmacists Covered</u>
Chemical and Petroleum Products.....	83
Trade (Wholesale and Retail).....	16
Other Industries.....	<u>1</u>
Total.....	100

About 33 per cent of the pharmacists covered were employed in firms with 800 to 1,600 persons.

### Future Employment Outlook

On the basis of the present survey, the employment of pharmacists in industry is expected to increase as follows:

During 1954 -	6.2 per cent
" 1955 -	22.9 " "
" 1956 -	18.4 " "



The two industries employing the largest number of the pharmacists covered expected the following increases:

<u>Industry</u>	Number Employed in Survey Sample at Jan. 1, 1954	Annual Increase		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Chemical and Petroleum Products..	282	6.4	25.6	20.7
Trade (Wholesale and Retail).....	56	5.4	6.8	6.4

The low coverage for this profession may account in part for the relatively high percentages in 1955 and 1956.

Employment of pharmacists was expected to show the largest increases in firms employing 800 to 1,600 persons.

#### Recruitment Problems

Five firms reported difficulties in recruiting pharmacists in 1952 and 1953 but none anticipated difficulties in 1954-1956.

Details on recruitment difficulties by industry are contained in Section III of this report.

## Physics

### Current Employment

It is estimated that between 2,000 and 3,000 graduates in physics are employed in Canada; 467 of these are covered by the present survey.

The major industrial employers of physicists, according to this survey, are:

<u>Industry</u>	<u>Percentage of the Physics Graduates Covered</u>
Mining, Quarrying and Oil Wells.....	48
Electrical Apparatus & Supplies.....	24
Other Industries.....	<u>28</u>
Total.....	100

Approximately 51 per cent of the physics graduates covered were in firms with 200 to 800 employees.

### Future Employment Outlook

On the basis of the present survey, the employment of physicists in industry is expected to increase as follows:

During 1954 - 8.2 per cent
" 1955 - 9.1 " "
" 1956 - 8.5 " "

Employment of physicists in the two industries where most of those covered are employed, was expected to increase as follows:

<u>Industry</u>	Number Employed in Survey Sample <u>at Jan. 1, 1954</u>	Annual Increase		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Mining, Quarrying & Oil Wells...	224	6.7	13.8	11.8
Electrical Apparatus & Supplies.	113	11.5	4.8	9.8

The larger increase expected in the mining, quarrying and oil well industry probably results, in part, from the demand for geophysicists.

The largest increases in the employment of physicists were expected by firms employing from 200 to 800 persons.

#### Recruitment Problems

Difficulties in obtaining graduates in physics in 1952 and 1953 were reported by seven firms, of which three were in the services industry.

Future recruitment difficulties were expected by five firms.

For further details on recruitment difficulties by industry, see Section III of this report.

## Law

### Current Employment

Between 9,000 and 11,000 lawyers are estimated to be employed in Canada. Because of the large number of lawyers either in private practice or employed by institutions not covered by this survey, the present analysis includes only 197. The very small size of the base figure should therefore be kept in mind in examining the following information.

The major industrial employers of graduates in law, according to the present survey, are:

<u>Industry</u>	<u>Percentage of the Lawyers Covered</u>
Transportation & Communication.....	35
Mining, Quarrying & Oil Wells.....	25
Finance, Insurance & Real Estate.....	18
Other Industries.....	<u>22</u>
Total.....	100

Firms with more than 3,200 employees accounted for over 44 per cent of the lawyers covered.

### Future Employment Outlook

Employment of lawyers in industry, on the basis of the present survey, is expected to increase as follows:

During 1954	-	3.5	per cent
" 1955	-	4.4	" "
" 1956	-	4.7	" "



In the three industries where the largest number of the lawyers covered were employed, the following changes were expected:

<u>Industry</u>	<u>Number Employed in Survey Sample at Jan. 1, 1954</u>	<u>Annual Change</u>		
		<u>1954</u>	<u>1955</u>	<u>1956</u>
		(Per Cent)		
Transportation & Communication.....	68	- 1.3	-	-
Mining, Quarrying & Oil Wells.....	49	+ 6.1	+11.5	+10.3
Finance, Insurance & Real Estate....	36	+13.9	+ 7.3	+ 6.8

It should be noted that firms in the transportation and communication industry expect a decrease in the employment of lawyers in 1954 and no change in 1955 and 1956.

Firms employing from 100 to 200 persons expected the largest increases.

#### Recruitment Problems

No difficulties in the recruitment of lawyers were reported or expected by the firms covered in the survey.



### III

#### ANALYSIS BY INDUSTRY

The survey covered a total of 774 firms employing 16,872 professional personnel in twenty different industry groups. The classification of industries for purposes of the survey followed, for the most part, the Standard Industrial Classification of the D.B.S., although in some instances adjustments had to be made. In some industries, such as the tobacco products industry, so few firms completed the questionnaire that they had to be grouped with firms in related industries. In these cases the industry title makes this quite clear. In other cases, where it was not convenient to group them with firms from other industries, a word of caution in interpreting the results has been inserted in the industry summary.

The wood products industry is the only industry covered by the survey not expecting an increase in its professional staff during 1954, 1955, and 1956. The expected percentage net increase during 1954 ranges from four per cent in the non-ferrous metal products industry to 18 per cent in the rubber products industry. During 1955, the expected increase ranges from five per cent in the transportation equipment industry to 16 per cent in the textile products industry, while in 1956 it ranges from two per cent in transportation, storage and communications to 11 per cent in the chemical and petroleum products industry.

Although approximately 20 per cent of the firms included in the survey had experienced recruiting difficulties because of a shortage of professionally-trained personnel during 1952 and 1953 and expected this shortage to continue during 1954, 1955 and 1956, there was a considerable variation among the different industries. During 1952 and 1953, 41 per cent of the firms in the electrical apparatus and supplies industry and 10 per cent in the food, beverages and tobacco products industry experienced recruiting difficulties because of a shortage of professional personnel; during 1954-1956 the percentages are 39 and three respectively.

## The Chemical and Petroleum Products Industry

### Current Employment

The present survey covers 62 firms in the chemical and petroleum products industry employing 1,736 professionally-trained personnel, of whom 27 per cent were chemical engineers, 21 per cent chemists and 16 per cent pharmacists; the remaining 36 per cent were distributed among various other fields of specialization.

About 35 per cent of the professionally-trained personnel were employed by firms with 400 to 800 workers. The remainder was equally distributed among firms of varying sizes.

Of the 62 firms surveyed, 35 indicated the reasons for increases in their professional labour force during 1952 and 1953. Twenty-six considered 'general expansion' and two the 'defence production program' as the principal reasons for the increase.

### Present and Projected Employment of Professional Personnel in the Chemical and Petroleum Products Industry

<u>Professional Field</u>	<u>Employment at</u> <u>January 1, 1954</u>		<u>Expected Percentage</u> <u>Net Increase in</u> <u>Employment during</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Chemical Engineering.....	467	27	6	6	7
Chemistry.....	357	21	11	10	9
Pharmacy.....	282	16	6	27	21
Other	<u>630</u>	<u>36</u>	<u>10</u>	<u>11</u>	<u>9</u>
TOTAL.....	<u>1,736</u>	<u>100</u>	<u>9</u>	<u>9</u>	<u>11</u>

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.



### Employment Outlook

According to the survey reports, the professional labour force in this industry was expected to increase by nine per cent during 1954 and 1955 and by 11 per cent during 1956.

By field of specialization, the principal increases are expected to be for chemical engineers, chemists, pharmacists and mechanical engineers.

Twenty-seven of the 62 firms surveyed gave 'general expansion' as the principal reason for the expected increase during 1954, 1955 and 1956. Three gave 'resource and new product development' and three 'expansion of research' as the principal reasons.

Only one firm expected a decrease in the employment of professional personnel during 1954-1956 and attributed this to 'declining rate of technological innovation or resource development'.

### Recruiting Problems

Of the 62 firms surveyed in the chemical and petroleum products industry, 24 per cent reported 'shortage of professionally-trained personnel' as the principal reason for their recruiting difficulties during 1952 and 1953, 31 per cent listed 'applicants considered unsatisfactory' and six per cent 'salary expectations above rates paid by firm' as main causes of their recruiting problems. The professions for which these problems arose were chemistry, chemical engineering, electrical and mechanical engineering.

Ten per cent of the firms surveyed anticipated that the shortage of professionally-trained personnel would continue and 14 per cent reported that they expected many of the applicants would be unsatisfactory. 'Salary expectations' was not considered to be an important factor.

## The Construction Industry

### Current Employment

The present survey covers 68 firms in the construction industry. These firms employed 747 professionally-trained persons, of whom 57 per cent were civil engineers, 16 per cent electrical engineers and the remaining 27 per cent in various other professional fields.

### Present and Projected Employment of Professional Personnel in The Construction Industry

<u>Professional Field</u>	<u>Employment at January 1, 1954</u>		<u>Expected Percentage Net Increase in Employment During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Civil Engineering.....	429	57	4	7	4
Electrical Engineering...	123	17	2	3	3
Others.....	<u>195</u>	<u>26</u>	<u>4</u>	<u>3</u>	<u>2</u>
TOTAL.....	<u>747</u>	<u>100</u>	<u>5</u>	<u>6</u>	<u>4</u>

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

According to the survey, the size of the professional labour force in the construction industry is expected to increase by about five per cent during 1954, six per cent in 1955 and four per cent in 1956. The higher percentage increase in 1955 is chiefly accounted for by the larger-than-average expected increase of seven per cent in the demand for civil engineers in the construction industry.

Among the 68 firms surveyed, 26 gave 'general expansion' as the principal reason for an expected increase in the employment of professionally-trained personnel, while the four firms expecting decreases in the employment of technical personnel gave 'slackening business activity' as the chief reason. It is interesting to note that the 'defence production program' was only rated by one firm as the principal reason for an expected increase in technical personnel during 1954-56. This is not surprising since the construction phase of the defence program is tapering off.

#### Recruiting Problems

Of the 68 firms included in the survey, 20 per cent reported difficulties in obtaining professionally-trained persons during 1952 and 1953; 10 per cent were anticipating difficulties during 1954, 1955 and 1956. This compares with 38 per cent and 23 per cent respectively for all industries covered by the survey.

About 13 per cent of the firms surveyed gave 'shortage of professionally-trained personnel' as the reason for their difficulty in recruiting during 1952 and 1953; seven per cent gave 'applicants considered unsatisfactory' and only six per cent gave 'salary expectations above rates paid by firm' as reasons for their recruiting problems. Respecting the future, nine per cent gave 'shortage of professionally-trained personnel', and three per cent gave 'applicants considered unsatisfactory' as reasons for anticipated difficulties in obtaining professional staff during 1954, 1955 and 1956.

From the above figures it appears that, on the basis of current salary rates, the shortage of professionally-trained personnel apparent during 1952 and 1953 is likely to continue but may not be as pronounced during 1954-1956.

## The Electrical Apparatus and Supplies Industry

### Current Employment

In this industry, the present survey covers 41 firms employing 1,856 professionally-trained persons, of whom 60 per cent were electrical engineers, 21 per cent mechanical engineers, six per cent physicists and the remaining 13 per cent in other fields of specialization. About 70 per cent of the professional persons covered by the survey were in firms employing over 3,200 workers.

Of the firms surveyed, 48 per cent gave 'general expansion' as the principal reason for their increases in the employment of professional personnel during 1952 and 1953. Only seven per cent rated 'resource and new product development' first and no firm mentioned the 'defence production program' as the principal reason.

### Present and Projected Employment of Professional Personnel in the Electrical Apparatus and Supplies Industry

<u>Professional Field</u>	<u>Employment at</u> <u>January 1, 1954</u>		<u>Expected Percentage Net</u> <u>Increase in Employment</u> <u>During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Electrical Engineering.....	1,116	60	12	6	5
Mechanical Engineering.....	396	21	5	6	6
Physics.....	113	6	11	5	10
Other.....	231	13	12	10	10
TOTAL.....	1,856	100	11	7	6

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

The 41 firms covered by the survey expected their employment of professionally-trained personnel to increase by 11 per cent during 1954, seven per cent during 1955 and six per cent in 1956. On the basis of the survey, retirements are only expected to amount to about one per cent of the professional labour force of the electrical apparatus and supplies industry.

Electrical engineers account for over 70 per cent of the total net increase expected in the employment of technical personnel during 1954, 56 per cent during 1955 and 58 per cent during 1956.

Forty-six per cent of the firms surveyed gave 'general expansion' as the principal reason for the expected increase in the employment of professionally-trained persons during 1954, 1955 and 1956. Only one firm indicated an expected decrease in its professional labour force.

### Recruiting Problems

Forty-one per cent of the 41 firms covered by the survey gave 'shortage of professionally-trained persons' as the principal reason for their difficulties in recruiting professional personnel during 1952 and 1953 and ten per cent gave 'salary expectations above rates paid by firm' as the principal reason. With respect to future difficulties, 39 per cent of the firms surveyed expected 'shortage of professionally-trained personnel' to be the principal cause and ten per cent listed 'salary expectations above rates paid by firm' as the chief cause.



## Finance, Insurance, and Real Estate

### Current Employment

The survey covers twenty-eight firms in finance, insurance and real estate. These firms employed 643 professionally-trained personnel of whom 45 per cent were in commerce and business administration, 28 per cent in mathematics and the remaining 27 per cent distributed among eight other fields of specialization.

Approximately 30 per cent of the professional labour force in this group was employed by firms with 1,600 to 3,200 workers, and 33 per cent by firms with 400 to 800 workers. Twenty-one of the 28 firms surveyed reported reasons for an increase in their professional staff during the past two years and 19 gave 'general expansion' as the principal reason for the increase.

### Present and Projected Employment of Professional Personnel in Finance, Insurance, and Real Estate

<u>Professional Field</u>	<u>Employment at</u>		<u>Expected Percentage</u>		
	<u>January 1, 1954</u>	<u>Net Increase in</u>	<u>Employment during</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Commerce or Business					
Administration.....	292	45	15	15	11
Mathematics.....	176	28	5	7	10
Other.....	175	27	10	9	6
TOTAL.....	643	100	11	12	10

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

The employment of professionally-trained personnel in finance, insurance and real estate is expected to increase by 11 per cent in 1954, by 12 per cent in 1955 and by 10 per cent in 1956. The fields of specialization most closely connected with these increases are commerce and business administration, mathematics and arts. No firms reported any expected decreases in the employment of professional personnel during 1954-1956.

### Recruiting Problems

Twenty-five per cent of the firms covered in the survey reported difficulties in recruiting professionally-trained personnel during 1952 and 1953, and gave 'shortage of professionally-trained personnel' as the principal reason. Seven per cent considered applicants to be unsatisfactory and 18 per cent listed 'salary expectations above rate paid by firm' as the principal reason for their recruitment problems. On the basis of the survey, these difficulties are expected to continue during 1954, 1955 and 1956. Eighteen per cent of the firms expecting recruitment difficulties gave 'shortage of professionally-trained personnel' as the principal cause; 11 per cent considered that salary expectations would lead to difficulties in increasing their professionally-trained labour force.

Commerce and business administration was the only field of specialization for which recruiting problems were specifically forecasted during 1954-1956.

## The Food, Beverages, and Tobacco Products Industry

### Current Employment

Survey returns were received from 29 firms in the food, beverages and tobacco products industry employing 302 professionally-trained persons, 22 per cent of whom were in the field of commerce or business administration, 20 per cent in chemistry, 19 per cent in agriculture, 15 per cent in chemical engineering, and the remainder in various other fields.

Seventeen per cent of the professionally-trained personnel were in firms employing over 3,200 workers, 15 per cent in firms employing between 1,600 and 3,200, and 44 per cent in firms employing between 400 and 800.

Ten firms listed 'general expansion' as the principal reason for increases in the employment of professionally-trained personnel in 1952 and 1953; two listed 'resource and new product development', and one listed 'defence production program'.

### Present and Projected Employment of Professional Personnel in The Food, Beverages and Tobacco Products Industry

<u>Professional Field</u>	<u>Employment at</u> <u>January 1, 1954</u>		<u>Expected Percentage</u> <u>Net Increase in</u> <u>Employment During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Commerce or Business					
Administration.....	67	22	11	7	11
Chemistry.....	62	20	3	9	4
Agriculture.....	56	19	4	5	10
Mechanical Engineering.....	44	15	14	14	2
Chemical           ".....	43	14	14	6	6
Other.....	30	10	13	9	0
TOTAL.....	302	100	8	8	6

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

In this industry, the firms covered expected employment of professionally-trained personnel to increase by eight per cent during 1954 and 1955 and six per cent in 1956. During 1955, the employment of mechanical engineers is expected to increase by 14 per cent and chemists by nine per cent; in 1956 employment of agricultural scientists is expected to increase by ten per cent and that of graduates in commerce and business administration by 11 per cent. No firms anticipated net decreases.

Ten firms anticipated that 'general expansion' and one that 'improved production methods' would be the principal causes of increases in the employment of professional staff during 1954, 1955 and 1956.

### Recruiting Problems

Of the 29 firms surveyed in the food, beverages and tobacco products industry, 17 per cent considered 'applicants considered unsatisfactory' as the principal reason for their difficulties in obtaining professional personnel during 1952 and 1953, while 10 per cent gave 'shortage of professionally-trained personnel and seven per cent gave 'salary expectations above rates paid by firm' as the principal reasons.

With respect to future difficulties, only three per cent of the firms considered that 'shortage of professionally-trained personnel' would be the main stumbling block while seven per cent expected 'salary expectations above rates paid by firm' would be the main difficulty.

## Forestry, Pulp and Paper Products

### Current Employment

In the forestry, pulp and paper products industry, the present survey covered 53 firms employing 1,305 professionally-trained personnel. Of these 26 per cent were forestry engineers, 20 per cent chemical and 20 per cent mechanical engineers. The remaining 34 per cent were distributed among fifteen different fields of specialization.

A very large proportion of the professional staff in this industry was employed by a few large firms. Firms with more than 3,200 workers employed about 38 per cent and firms with 800 to 1,600 accounted for a further 28 per cent of the total covered in this industry.

### Present and Projected Employment of Professional Personnel in Forestry, Pulp and Paper Products

<u>Professional Field</u>	<u>Employment at</u> <u>January 1, 1954</u>		<u>Expected Percentage</u> <u>Net Increase in</u> <u>Employment During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Forestry Engineering.....	336	26	6	3	3
Chemical " .....	255	20	5	8	6
Mechanical " .....	255	20	10	12	6
Other.....	459	34	4	5	3
TOTAL.....	1,305	100	6	6	4

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.



### Employment Outlook

The firms included in the survey expected the employment of professional personnel in this industry to increase by six per cent during 1954 and 1955, and four per cent during 1956. It was anticipated that these increases would be largely in the chemical, mechanical and forestry engineering professions. Of the 29 firms reporting reasons for the expected increases, 12 gave 'general expansion', 10 gave 'improved production methods', five gave 'expansion of research' and two gave 'resources and new product development' as the principal reasons for expected increases in 1954, 1955 and 1956. No firms expected decreases during the same period.

### Recruiting Problems

Twenty-one per cent of the firms covered in this industry reported difficulties in recruiting professional personnel during 1952 and 1953 and considered 'shortage of professionally-trained personnel' as the principal cause. Seventeen per cent of the firms considered 'applicants considered unsatisfactory' and six per cent considered 'salary expectations above rates paid by firm' as the factors responsible for their recruiting problems.

Recruitment problems were expected to be somewhat fewer in 1954-1956 than in 1952 and 1953. Only nine per cent of the firms considered that 'shortage of professionally-trained personnel' would give rise to recruiting difficulties. The difficulties were expected to be largely in the fields of chemistry and chemical engineering.

## Iron and Steel Products Industry

### Current Employment

The present survey covered 116 firms employing 1,201 professional personnel in the iron and steel products industry. Of these, 50 per cent were mechanical engineers, 16 per cent civil engineers, and nine per cent metallurgists; the remaining 25 per cent were distributed among various other fields of specialization.

Firms with 400 to 800 workers accounted for 24 per cent of the total employment, those with 800 to 1,160 accounted for a further 18 per cent and those with 1,600 to 3,200 accounted for 12 per cent.

Sixty-seven firms reported reasons for increases in their professional staff during 1952 and 1953. Fifty-one listed 'general expansion', six listed 'resource and new product development', seven listed 'improved production methods or services', one listed 'expansion of research activities' and one listed 'defence production program' as the principal reasons.

### Present and Projected Employment of Professional Personnel in the Iron and Steel Products Industry

<u>Professional Field</u>	<u>Employment at</u>		<u>Expected Percentage Net</u>		
	<u>January 1, 1954</u>	<u>During</u>	<u>Increase in Employment</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Mechanical Engineering.....	599	50	3	10	10
Civil Engineering.....	186	16	10	6	6
Metallurgy.....	111	9	6	10	11
Other.....	305	25	5	11	8
TOTAL.....	1,201	100	5	9	9

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

The firms included in the survey expected their professional labour force to increase by five per cent during 1954 and nine per cent during 1955 and 1956. Of the 59 firms reporting reasons for these increases, 36 firms considered 'general expansion', nine considered 'resources and new product development', nine considered 'improved production methods' and five considered 'expansion of research' as the principal reasons.

Only seven firms anticipated a decrease in the employment of professional personnel during 1954-1956 and 'slackening of business activity' was expected to be the principal reason by six of these.

### Recruiting Problems

During 1952 and 1953, 17 per cent of the 116 firms covered had experienced a shortage of professionally-trained personnel and a further nine per cent had experienced recruiting difficulties because they considered many applicants unsatisfactory. Six per cent attributed their recruiting problems to the fact that 'salary expectations were above rates paid by firm'. The principal field of specialization in which these difficulties arose was mechanical engineering.

Although the shortage of professionally-trained personnel was expected to continue during 1954, 1955 and 1956, only 12 per cent of the firms included in the survey considered this shortage would be a problem. Two per cent of the firms gave 'salary expectations above rates paid by firm' as the principal reason for their expected recruiting problems. Mechanical engineering was expected to be the professional field most likely to give rise to difficulties.

## Mining, Quarrying and Oil Wells

### Current Employment

In mining, quarrying and oil wells, the survey covered 56 firms employing a total of 1,557 professionally-trained persons of whom 22 per cent were mining engineers, 15 per cent geologists, 14 per cent physicists and 11 per cent geological engineers; the remaining 38 per cent were distributed among various fields of specialization.

Twenty-two firms reported reasons for the increase in their professional labour force during 1952 and 1953 and 19 of these considered 'general expansion' as the principal reason for the increase. Two firms listed 'resource and new product development' and, one firm 'expansion of research activities' and one 'defence production program' as the main causes of their increase.

### Present and Projected Employment of Professional Personnel in the Mining, Quarrying and Oil Wells Industry

<u>Professional Field</u>	<u>January 1, 1954</u>		<u>Expected Percentage Net Increase in Employment During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Mining Engineering.....	341	22	12	11	9
Geology.....	235	15	29	9	9
Physics.....	224	14	7	14	12
Geological Engineering....	175	11	9	9	6
Other.....	582	38	15	11	10
TOTAL.....	1,557	100	16	11	8

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

The employment of professional personnel in this industry was expected to increase by 16 per cent during 1954, 11 per cent during 1955 and eight per cent during 1956. The increase for geologists was expected to be about 29 per cent during 1954 and nine per cent in 1955 and in 1956.

Among the firms giving reasons for an expected increase in the employment of professional personnel, 15 considered 'general expansion' as the most important while three firms listed 'resource and new product development' as the principal reason. Firms employing over 200 workers accounted for most of the increases expected during 1954-1956.

### Recruiting Problems

Of the fifty-six firms covered, 30 per cent experienced recruiting difficulties during 1952 and 1953 and attributed their difficulties to a 'shortage of professionally-trained personnel'; 16 per cent gave 'applicants considered unsatisfactory' as the principal reason for their recruiting problems. Only four per cent considered 'high salary expectations' responsible.

On the basis of the survey, firms in mining, quarrying and oil wells expected recruitment difficulties to continue during 1954, 1955 and 1956. Among the firms reporting reasons for these expected difficulties, 25 per cent expected the shortage of professionally-trained personnel to be the most important factor; only two per cent considered that the applicants would demand salaries higher than those being paid by the firm.



## The Non-Ferrous Metal Products Industry

### Current Employment

In the non-ferrous metal products industry, seventeen firms were surveyed, accounting for 1,259 professionally-trained personnel of whom 19 per cent were chemical engineers, 14 per cent metallurgists, 12 per cent electrical and 11 per cent mining engineers.

Firms with more than 3,200 workers accounted for 85 per cent of the professional personnel covered in this industry.

Seven of the firms surveyed reported reasons for increases in their professional labour force during 1952 and 1953 and gave 'general expansion' as the principal reason for the increase.

### Present and Projected Employment of Professional Personnel in the Non-Ferrous Metal Products Industry

<u>Professional Field</u>	<u>Employment at</u>		<u>Expected Percentage</u>		
	<u>January 1, 1954</u>		<u>Net Increase in</u>	<u>Employment During</u>	
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Chemical Engineering.....	237	19	6	10	7
Metallurgy.....	176	14	8	7	7
Electrical Engineering.....	148	12	3	(1)	3
Mining Engineering.....	137	11	3	(1)	5
Other.....	561	44	6	3	6
TOTAL.....	1,259	100	4	4	6

(1) Less than one per cent.

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

According to the employers covered, the employment of professionally-trained personnel in the non-ferrous metal products industry is expected to increase by five per cent during 1954, four per cent during 1955 and six per cent during 1956. The increases are expected to be mainly in chemical, electrical and mining engineering and in metallurgy.

### Recruiting Problems

Of the seventeen firms covered in this industry, 29 per cent reported difficulties in recruiting professional personnel during 1952 and 1953 because of a 'shortage of professionally-trained personnel', twelve per cent gave 'applicants considered unsatisfactory' as the reason for their recruiting problems and a further 18 per cent reported that 'salary expectations above rates paid by firm' was the main reason for difficulty.

Recruitment difficulties were expected by 29 per cent of the firms because of a 'shortage of professionally-trained personnel' during 1954, 1955 and 1956. Only six per cent expected that salary expectations would cause recruiting difficulties. The problems were expected to be mainly in the fields of mining engineering and metallurgy.

### Non-Metallic Mineral Products

#### Current Employment

The eighteen firms covered in the non-metallic mineral products industry accounted for 190 professionally-trained persons of whom 22 per cent were mining engineers, 20 per cent civil engineers and 16 per cent chemical engineers; the remaining 42 per cent were distributed among ten other fields of specialization. Firms employing between 1,600 and 3,200 employees accounted for 45 per cent of the professional staff in this industry. Of the ten firms reporting reasons for an increase in their professionally-trained personnel during 1952 and 1953, six listed 'general expansion' as the principal reason for the increase and one considered the 'defence production program' as the main cause.

#### Present and Projected Employment of Professional Personnel in the Non-Metallic Mineral Products Industry

<u>Professional Field</u>	<u>Employment at</u>		<u>Expected Percentage</u>		
	<u>January 1, 1954</u>	<u>Net Increase in</u>	<u>Employment During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Mining Engineering.....	42	22	0	0	0
Civil " .....	39	20	5	5	5
Chemical " .....	30	16	7	3	6
Other.....	79	42	6	7	6
TOTAL.....	190	100	5	5	4

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

On the basis of the present survey, the employment of professionally-trained personnel in this industry is expected to increase by approximately five per cent in 1954 and in 1955 and four per cent in 1956.

Among the firms reporting reasons for this expected increase, six considered 'general expansion' as the principal cause and one 'improved production methods'. No firm expected a decrease during 1954, 1955 and 1956 and only one professional person was expected to retire permanently.

### Recruiting Problems

Thirty-three per cent of the firms surveyed in this industry experienced difficulties in recruiting professionally-trained personnel during 1952 and 1953 and gave as the principal reason, the shortage of professionally-trained personnel. Twenty-two per cent considered the lack of qualification on the part of the applicants as their main problem in recruiting professional staff. High salary expectation were not considered an important factor in this industry. Mining engineering and metallurgy were the two fields presenting most of the recruiting problems.

Recruiting difficulties were expected to continue during 1954, 1955 and 1956. Twenty-two per cent of the firms reported that they expected the shortage of professionally-trained personnel would be the most important factor responsible for their future recruiting problems. Only six per cent considered the salary expectations of applicants to be an important factor.

## Public Utility Operations

### Current Employment

The present survey covered 18 firms in public utility operations, accounting for 569 professionally-trained persons. Of these, 69 per cent were electrical engineers, 20 per cent civil engineers and the remaining 11 per cent were distributed among various other fields of specialization. Eight firms reported reasons for increases in their employment of professional personnel during 1952 and 1953; seven gave 'general expansion' as the principal reason for the increase and one firm reported that recent 'resource and new product development' had resulted in an increase of their professional staff.

### Present and Projected Employment of Professional Personnel in the Public Utility Operation Industry

<u>Professional Field</u>	<u>Employment at</u>		<u>Expected Percentage</u>		
	<u>January 1, 1954</u>		<u>Net Increase in</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Electrical Engineering.....	394	69	5	4	3
Civil Engineering.....	114	20	5	7	5
Other.....	<u>61</u>	<u>11</u>	<u>26</u>	<u>2</u>	<u>19</u>
TOTAL.....	<u>569</u>	<u>100</u>	<u>7</u>	<u>5</u>	<u>5</u>

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.



### Employment Outlook

The employment of professional personnel in this industry, on the basis of the survey, was expected to increase by seven per cent during 1954 and by five per cent during 1955 and 1956. The increases were expected to be largely in the field of electrical engineering. Of the nine firms reporting reasons for the expected increase in employment eight indicated that 'general expansion' would be the principal reason, while the other firm gave 'resource and new product development' as the chief cause. No firm expected any decrease in the employment of professional personnel during 1954-1956.

### Recruiting Problems

Of the 18 firms surveyed in this industry, 33 per cent had experienced difficulties in recruiting professionally-trained persons during 1952 and 1953 and attributed these mainly to a shortage of applicants. Although this shortage was expected to continue during 1954, 1955 and 1956, a somewhat smaller percentage (22%) of the reporting firms expected it to be the main cause of their recruiting difficulties. A further 11 per cent of the firms anticipated recruiting difficulties because the 'applicants expect salaries higher than those currently paid by the firm'.

## Rubber Products Industry

### Current Employment

In the rubber products industry, the survey covered 14 firms employing 169 professionally-trained personnel, of whom 37 per cent were chemical and 36 per cent mechanical engineers. The remaining 27 per cent were distributed among 11 other fields of specialization.

Firms employing between 800 and 1,600 workers accounted for 43 per cent of the total employment of professional staff in the rubber products industry. During 1952 and 1953, eight firms reported reasons for increases in their employment of professional personnel; four of these gave 'general expansion' as the principal reason for the increase, while three gave 'resource and new product development'.

### Present and Projected Employment of Professional Personnel in the Rubber Products Industry

<u>Professional Field</u>	<u>Employment at</u> <u>January 1, 1954</u>		<u>Expected Percentage</u> <u>Net Increase in</u> <u>Employment During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Chemical Engineering.....	62	37	8	7	6
Mechanical " .....	61	36	18	8	6
Other.....	46	27	33	20	15
TOTAL.....	169	100	18	11	9

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

The fourteen firms covered expected the employment of professional personnel to increase by 18 per cent in 1954, 11 per cent in 1955 and nine per cent in 1956. Of the five firms reporting reasons for the expected increase, four considered 'general expansion' and one considered 'resource and new product development' as the principal causes.

### Recruiting Problems

The firms covered by the survey experienced difficulties in recruiting professionally-trained personnel during 1952 and 1953 and expected these difficulties to continue during 1954, 1955 and 1956. Fourteen per cent considered a 'shortage of professionally-trained personnel' to be the principal cause of their problems and a further 14 per cent gave 'salary expectations above rates paid by firm' as the main cause. Twenty-one per cent of the firms surveyed expected that a 'shortage of professionally-trained personnel' would be the main factor responsible for recruiting difficulties during 1954-1956. Only six per cent listed 'salary expectations above rates paid by firm' as the reason for their anticipated recruiting difficulties.

### Service Industry

For the purposes of the present survey, the service industry includes community service, business service and parts of government service. Excluded from the government service sector are the armed forces and all employees covered by the Civil Service Commission. Similar classes of provincial government employees are also excluded.

### Current Employment

In the service industry the present survey covered 122 firms employing 2,560 professional persons. Twenty-one per cent of these were civil engineers, 20 per cent were nurses, 17 per cent were accountants and the remaining 42 per cent were distributed among 19 other fields of specialization.

Firms employing between 200 and 400 workers accounted for about 25 per cent of the total professional employment and firms employing under 50 workers accounted for 24 per cent. A further 23 per cent of the professional labour force was employed by firms with over 800 employees.

Of the 70 firms reporting reasons for their increases in professional staff during 1952 and 1953, 59 rated 'general expansion' first. Only seven firms reported a decrease in their professional labour force during 1952 and 1953, and four of these gave 'slackening business activity' as the principal reason.

Present and Projected Employment of Professional Personnel  
in the Service Industry

<u>Professional Field</u>	<u>Employment at January 1, 1954</u>		<u>Expected Percentage Net Increase in Employment During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Civil Engineering.....	544	21	4	10	5
Nursing.....	528	20	3	7	2
Chartered Accountancy..	440	17	2	4	4
Mechanical Engineering..	176	7	10	13	15
Other.....	<u>872</u>	<u>35</u>	<u>10</u>	<u>9</u>	<u>6</u>
TOTAL.....	<u>2,560</u>	<u>100</u>	<u>6</u>	<u>8</u>	<u>6</u>

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

Employment Outlook

The firms covered expected their employment of professional personnel to increase by six per cent during 1954, eight per cent during 1955 and six per cent during 1956.

Among the 58 firms reporting reasons for the expected increase, 51 gave 'general expansion' first place. Nine firms expected a decrease in their professional labour force during 1954-1956. Five firms gave 'slackening business activity' as the principal reason for the expected decrease while the other four stated that the reduction of defence contracts would cause a net decrease in their professional staff.

Recruiting Problems

Thirty-one per cent of the 122 firms covered in this industry had experienced recruiting difficulties during 1952 and 1953 because of a 'shortage of professionally-trained personnel', 11 per cent because the 'applicants were considered unsatisfactory' and 12 per cent because the 'salary expectations were above the rates paid by the firm'.

Recruiting difficulties were expected to continue during 1954-1956; 25 per cent of the firms forecasted a 'shortage of professionally-



## Textile Products Industry

### Current Employment

The present survey covered 11 firms in the textile products industry, employing a total of 117 professional persons. Of these 29 per cent were in the field of chemistry, 22 per cent in commerce or business administration, 20 per cent in mechanical engineering and the remaining 29 per cent in seven other fields of specialization. Firms employing between 800 and 1,600 workers accounted for 47 per cent of the total professional labour force in the textile firms covered, while a further 38 per cent were in firms with 1,600 to 3,200 employees. Of the eight firms reporting reasons for an increase in their professional staff during 1952 and 1953, three listed 'general expansion', three listed 'improved production methods', one listed 'expansion of research activities' and one listed the 'defence production program' as the principal reasons for the increase.

### Present and Projected Employment of Professional Personnel in the Textile Products Industry

<u>Professional Field</u>	<u>Employment at</u> <u>January 1, 1954</u>		<u>Expected Percentage</u> <u>Net Increase in</u> <u>Employment During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Commerce or Business					
Administration.....	25	22	8	0	4
Mechanical Engineering..	24	20	4	12	7
Chemistry.....	34	29	6	8	10
Other.....	34	29	11	26	14
TOTAL.....	117	100	7	16	10

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

The employment of professionally-trained personnel in the textile products industry, according to this survey, expected to increase by seven per cent during 1954, 16 per cent during 1955 and 10 per cent during 1956. Seven firms reported reasons for these expected increases; three gave 'general expansion' while two considered 'resource and new product development' and two 'improved production methods' as the principal reasons for the anticipated increases. Only one firm expected a decrease. 'Slackening of activity in business' was given as the principal reason.

### Recruiting Problems

Twenty-seven per cent of the firms included in the survey reported that shortage of professionally-trained personnel had been the principal cause of their recruiting difficulties during 1952 and 1953 and 18 per cent considered that it would continue to give rise to recruiting difficulties during 1954, 1955 and 1956. Salary expectations were not mentioned as a factor in the recruiting problems of firms in the textile products industry.

## Transportation Equipment Industry

### Current Employment

The 36 firms in the transportation equipment industry covered by the present survey employed 1,036 professional persons of whom 65 per cent were mechanical engineers, 17 per cent graduates in commerce or business administration and the remainder distributed among 14 other fields of specialization.

Slightly more than 70 per cent of the professional labour force was employed by firms with more than 3,200 workers. Twenty-two firms reported reasons for increases in their employment of professional personnel during 1952 and 1953 and 11 of these considered 'general expansion' as the principal reason for the increase. Six firms listed 'resource and new product development' as the main cause.

### Present and Projected Employment of Professional Personnel in the Transportation Equipment Industry

<u>Professional Field</u>	<u>Employment at January 1, 1954</u>		<u>Expected Percentage Net Increase in Employment During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Mechanical Engineering.....	673	65	27	5	4
Commerce or Business Administration.....	180	17	7	8	4
Electrical Engineering.....	65	6	21	3	2
Other.....	118	12	10	5	5
TOTAL.....	1,036	100	20	5	4

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

According to the survey, the employment of professional persons in the transportation equipment industry was expected to increase by 20 per cent during 1954, five per cent during 1955, and four per cent during 1956. Ten of the firms reporting reasons for the expected increases gave 'general expansion' and seven gave 'resource and new product development' as the principal reasons.

### Recruiting Problems

Twenty-eight per cent of the 36 firms covered experienced difficulties in recruiting professional personnel in 1952 and 1953 and attributed these mainly to a 'shortage of professionally-trained personnel'; 11 per cent attributed their difficulties to the fact that many applicants were unsatisfactory, and a further three per cent indicated that the salary expectations of the applicants were higher than the rates the firms were prepared to pay.

The shortage of professionally-trained personnel, according to the survey, is expected to continue during 1954, 1955 and 1956. Thirty-one per cent of the firms anticipated recruiting difficulties during 1954-1956 and expected a 'shortage of professionally-trained personnel' would be the main cause of their problems. Salary expectations were not expected to cause any recruiting difficulty in this industry. Recruitment of mechanical engineers was expected to be the most difficult.

## The Transportation, Storage and Communications Industry

### Current Employment

The present survey covers 22 firms employing 1,793 professionally-trained persons in the transportation, storage and communications industry. Of these, 34 per cent were electrical engineers, 26 per cent civil engineers and 11 per cent graduates in commerce and business administration. The remaining 29 per cent were distributed among fifteen other fields of specialization.

Somewhat more than 90 per cent of all professionally-trained personnel employed in this industry were, according to the survey, employed by firms with over 3,200 workers.

Of firms reporting reasons for increases in their professional labour force during 1952 and 1953, ten listed 'general expansion' and one 'improved production methods or services' as the principal reasons for this increase. Only one firm experienced a net decrease during 1952 and 1953 and 'slackening of business activity' was given as the principal reason for this.



Present and Projected Employment of Professional Personnel  
in the Transportation, Storage and Communications Industry

<u>Professional Field</u>	<u>Employment at January 1, 1954</u>		<u>Expected Percentage Net Increase in Employment During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Electrical Engineering.....	601	34	8	11	3
Civil " .....	463	26	3	3	(1)
Commerce & Business Adminis- tration.....	207	11	5	5	3
Other.....	522	29	3	2	1
TOTAL.....	1,793	100	5	5	2

(1) Less than one per cent

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

Employment Outlook

Of the twenty-two firms covered in the survey, 12 anticipated an increase in their professionally-trained staff during 1954, 1955 and 1956. The increases ranged from five per cent during 1954 and 1955 to two per cent for 1956. Of the firms stating reasons for expected increases, ten listed 'general expansion' and one 'improved production methods or services' as the principal reasons.

Recruiting Problems

Problems encountered in recruiting professionally-trained personnel were similar in the transportation, storage and communications industry to those of other industries covered in the survey. During the past two years 27 per cent of the firms surveyed had difficulty in recruiting because of the 'shortage of professionally-trained personnel' and nine per cent because the 'salary expectations were above rates paid by the firm.

Similar difficulties were expected during 1954, 1955 and 1956. Fourteen per cent of the firms surveyed anticipated difficulties because of a 'shortage of professionally-trained personnel' and nine per cent because 'salary expectations were above rates paid by the firm'. The greatest difficulties were expected to be in the fields of electrical and mechanical engineering.

## Wholesale and Retail Trade

### Current Employment

The 51 firms in the wholesale and retail trade covered by the survey employed 889 professionally-trained persons, of whom 28 per cent were in commerce or business administration, 15 per cent in electrical and 14 per cent in mechanical engineering.

About 20 per cent of the total were employed by firms with 400 to 800 workers, 20 per cent by firms with 800 to 1,600 workers, and 15 per cent by firms with 1,600 to 3,200.

Thirty-five firms reported reasons for increases in their professional labour force during 1952 and 1953 and 27 firms gave 'general expansion' as the principal reason for the increases. Only one firm reported a decrease and 'slackening business activity' was considered the principal cause.

### Present and Projected Employment of Professional Personnel in Wholesale and Retail Trade

<u>Professional Field</u>	<u>Employment at</u> <u>January 1, 1954</u>		<u>Expected Percentage</u> <u>Net Increase in</u> <u>Employment During</u>		
	<u>Number</u>	<u>Percent</u>	<u>1954</u>	<u>1955</u>	<u>1956</u>
Commerce or Business					
Administration.....	248	28	20	24	19
Electrical Engineering.....	135	15	10	9	9
Mechanical ".....	122	14	9	10	6
Other.....	384	43	3	5	6
TOTAL.....	889	100	9	12	10

NOTE: The base from which the increase during each year has been calculated, is the employment at the beginning of that year.

### Employment Outlook

On the basis of the survey, firms surveyed in wholesale and retail trade expected their employment of professionally-trained staff to increase by nine per cent in 1954, 12 per cent in 1955 and 10 per cent in 1956. Increases were expected mainly in the fields of commerce or business administration and in electrical and mechanical engineering.

Twenty firms forecasted that 'general expansion' would be the principal reason for the expected increase in their professional labour force; two firms considered 'improved production methods' would be the most important factor.

### Recruiting Problems

Of the 51 firms surveyed in this industry, 28 per cent considered the 'shortage of professionally-trained personnel' as the chief reason for their past recruiting difficulties, while 10 per cent listed 'applicants considered unsatisfactory' and a further 10 per cent 'salary rates above rates paid by firm' as the main reasons for their recruiting problems.

Although similar difficulties were anticipated during 1954, 1955 and 1956, a somewhat smaller percentage of the firms expected 'salary expectations' to be an important factor.

TABLE 1

## CONSOLIDATED SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1)

Field of Specialization	Number Employed at January 1, 1954	During 1954			During 1955			During 1956		
		Expected net increase in total number employed	Expected net decrease in total number employed	Number expected to retire permanently	Expected net increase in total number employed	Expected net decrease in total number employed	Number expected to retire permanently	Expected net increase in total number employed	Expected net decrease in total number employed	Number expected to retire permanently
Engineering:										
Chemical.....	1,557	145	19	6	155	3	4	139	3	6
Civil.....	2,200	142	55	25	160	19	30	90	4	27
Electrical.....	3,012	311	29	26	233	5	29	271	2	26
Geological.....	281	29	3	2	30	-	-	21	-	4
Mechanical.....	3,131	436	58	21	297	9	16	264	4	23
Metallurgical.....	410	40	2	22	25	1	2	34	-	2
Mining.....	604	57	8	3	58	1	-	54	-	3
Other Professions:										
Architects.....	243	22	3	-	15	3	2	11	-	4
Agriculture.....	281	17	6	3	21	1	1	19	-	-
Biology.....	68	2	-	-	4	-	-	2	-	-
Chemistry.....	760	81	9	5	59	-	1	79	-	5
Commerce or Business Administration.....	1,924	218	9	3	262	3	1	245	4	2
Chartered Accountants...	507	37	23	-	44	20	1	42	20	-
Forestry.....	356	24	3	1	12	1	1	10	-	2
Geology.....	268	71	1	-	31	1	-	36	1	-
Mathematics.....	265	25	-	1	20	2	1	26	-	-
Physics.....	467	56	18	2	48	2	2	47	-	2
Pharmacists.....	341	21	-	-	-	-	-	-	-	-
Lawyers.....	197	8	1	-	9	-	-	10	-	1

(1) Includes university-trained personnel and members of recognized professional organizations.

(2) By "net" is meant all hirings less all separations including retirements during the year for each firm reporting.





TABLE 2

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE CHEMICAL AND  
PETROLEUM PRODUCTS INDUSTRIES

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	467	36	5	32	-	36	-
Civil.....	45	6	-	6	-	4	-
Electrical.....	53	5	-	3	-	3	-
Geological.....	12	2	-	2	-	2	-
Mechanical.....	197	28	1	27	-	23	-
Metallurgical.....	7	1	-	-	-	1	-
Mining.....	6	-	-	-	-	-	-
Other Professions:							
Agriculture.....	69	4	3	9	-	6	-
Biology.....	13	1	-	2	-	-	-
Chemistry.....	357	42	2	40	-	38	-
Commerce or Business Administration....	159	18	3	26	-	23	-
Chartered Accountants	3	-	-	-	-	-	-
Forestry.....	1	-	-	-	-	-	-
Geology.....	11	-	-	-	-	-	-
Mathematics.....	12	2	-	2	-	1	-
Physics.....	282	1	-	-	-	1	-
Pharmacists.....	3	18	-	77	-	78	-
Lawyers.....	7	-	-	-	-	-	-
Medical Officers.....	1	-	-	-	-	-	-
Nurses.....		-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 3

## SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE CONSTRUCTION INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	56	2	-	-	2	-	-
Civil.....	429	36	18	45	12	21	1
Electrical.....	123	7	4	6	2	4	-
Geological.....	2	-	-	-	-	1	-
Mechanical.....	96	10	1	7	1	5	-
Metallurgical.....	3	-	-	1	-	-	-
Mining.....	7	3	-	1	-	-	-
Other Professions:							
Architects.....	5	-	-	-	-	-	-
Agriculture.....	-	1	-	-	-	-	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	-	-	-	-	-	-	-
Commerce or Business Administration...	22	4	-	1	-	-	-
Forestry.....	-	-	-	-	-	-	-
Geology.....	3	-	-	-	-	-	-
Mathematics.....	-	-	-	-	-	-	-
Physics.....	1	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 4

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE ELECTRICAL APPARATUS AND SUPPLIES INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	29	2	-	1	-	3	-
Civil.....	3	-	-	-	-	-	-
Electrical.....	1116	142	4	76	-	70	-
Geological.....	1	-	-	-	-	-	-
Mechanical.....	396	42	23	28	1	29	2
Metallurgical.....	13	1	-	2	-	-	-
Mining.....	2	-	-	-	-	-	-
Other Professions:							
Agriculture.....	3	-	-	-	-	-	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	13	2	-	-	-	1	-
Commerce or Business Administration....	102	17	-	25	1	24	-
Chartered Accountants	2	-	-	-	-	-	-
Forestry.....	2	1	-	-	-	-	-
Geology.....	-	-	-	-	-	-	-
Mathematics.....	16	5	-	-	-	-	-
Physics.....	113	13	-	6	-	13	-
Medical Officers.....	1	-	-	-	-	-	-
Arts.....	35	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.





TABLE 5

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL<sup>(1)</sup> IN THE FINANCE, INSURANCE AND  
REAL ESTATE INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	-	-	-	-	-	-	-
Civil.....	10	-	-	-	-	-	-
Electrical.....	2	-	-	-	-	-	-
Geological.....	1	-	-	-	-	-	-
Mechanical.....	2	-	-	-	-	-	-
Metallurgical.....	-	-	-	-	-	-	-
Mining.....	-	-	-	-	-	-	-
Other Professions:							
Agriculture.....	6	-	-	-	-	-	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	-	-	-	2	-	-	-
Commerce or Business							
Administration.....	292	46	1	51	-	43	-
Chartered Accountants.	11	-	-	-	-	-	-
Forestry.....	1	-	-	-	-	-	-
Geology.....	1	-	-	-	-	-	-
Mathematics.....	176	8	-	15	2	19	-
Physics.....	14	-	-	-	-	-	-
Lawyers.....	36	5	-	3	-	3	-
Medical Officers.....	15	-	-	1	-	-	-
Arts.....	79	11	-	12	-	10	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 6

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL<sup>(1)</sup> IN THE FOOD, BEVERAGES, AND TOBACCO  
PRODUCTS INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	43	6	-	3	-	3	-
Civil.....	8	-	-	2	-	-	-
Electrical.....	12	4	-	1	-	-	-
Geological.....	-	-	-	-	-	-	-
Mechanical.....	44	6	-	7	-	1	-
Metallurgical.....	-	-	-	-	-	-	-
Mining.....	-	-	-	-	-	-	-
Other Professions:							
Architects.....	2	-	-	-	-	-	-
Agriculture.....	56	2	-	3	-	6	-
Biology.....	4	-	-	-	-	-	-
Chemistry.....	62	2	-	6	-	3	-
Commerce or Business Administration...	67	6	-	5	-	9	-
Forestry.....	-	-	-	-	-	-	-
Geology.....	-	-	-	-	-	-	-
Mathematics.....	-	-	-	-	-	-	-
Physics.....	-	-	-	-	-	-	-
Lawyers.....	4	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.





TABLE 7  
SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL(1) IN THE FORESTRY, PULP AND PAPER  
PRODUCTS INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	255	19	6	22		18	-
Civil.....	82	4	-	1	-	1	-
Electrical.....	75	4	-	5	-	-	-
Geological.....	-	-	-	-	-	-	-
Mechanical.....	255	27	1	35	-	20	-
Metallurgical.....	3	-	-	-	-	-	-
Mining.....	4	-	-	-	-	-	-
Other Professions:							
Architects.....	2	-	-	-	-	-	-
Agriculture.....	2	-	-	-	-	-	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	117	6	-	6	-	4	-
Commerce or Business Administration..	134	4	-	10	-	10	2
Chartered Accountants	7	-	-	2	-	-	-
Forestry.....	336	23	3	12	1	9	-
Geology.....	3	-	-	-	-	-	-
Mathematics.....	2	-	-	-	-	-	-
Physics.....	4	-	-	-	-	-	-
Lawyers.....	5	-	-	-	-	-	-
Medical Officers...	7	-	-	-	-	-	-
Nurses.....	12	1	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 8

SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE IRON AND STEEL PRODUCTS INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	48	7	=	8	=	7	=
Civil.....	186	18	=	13	=	14	=
Electrical.....	88	5	2	14	=	10	=
Geological.....	2	=	=	2	=	2	=
Mechanical.....	599	39	23	66	2	73	=
Metallurgical.....	110	7	=	13	1	15	=
Mining.....	31	2	=	3	=	2	=
Other Professions:							
Applied Science.....	7	1	=	=	=	=	=
Architects.....	2	=	=	=	=	=	=
Agriculture.....	23	=	1	2	=	1	=
Biology.....	3	=	=	=	=	=	=
Chemistry.....	15	=	1	=	=	1	=
Commerce or Business Administration.....	55	4	=	6	=	4	=
Forestry.....	3	=	=	=	=	=	=
Geology.....	1	=	=	=	=	=	=
Mathematics.....	3	=	=	=	=	=	=
Physics.....	8	=	=	=	=	=	=
Lawyers.....	2	=	=	=	=	=	=
Nurses.....	1	=	=	=	=	=	=
Chartered Accountants.	6	=	=	=	=	=	=
Arts.....	7	=	=	=	=	=	=

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 9

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL<sup>(1)</sup> IN THE MINING, QUARRYING AND OIL WELL INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	136	36	-	35	-	36	-
Civil.....	52	7	-	5	-	3	-
Electrical.....	59	7	1	8	-	6	-
Geological.....	175	17	2	17	-	12	-
Mechanical.....	79	13	1	10	-	9	-
Metallurgical.....	34	10	-	3	-	2	-
Mining.....	341	45	3	43	1	39	-
Other Professions:							
Agriculture.....	-	-	-	-	-	-	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	11	-	-	-	-	-	-
Commerce or Business							
Administration....	122	10	-	5	-	9	-
Chartered Accountants	1	-	-	-	-	-	-
Forestry.....	-	-	-	-	-	-	-
Geology.....	235	68	-	29	1	31	1
Mathematics.....	29	5	-	2	-	2	-
Physics.....	224	32	17	35	2	32	-
Lawyers.....	49	3	-	6	-	6	-
Medical Officers.....	1	-	-	-	-	-	-
Nurses.....	9	-	-	6	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.





**TABLE 10**  
**SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL<sup>(1)</sup> IN THE NON-FERROUS METAL PRODUCTS INDUSTRY**

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
<b>Engineering:</b>							
Chemical.....	239	17	3	24	-	19	-
Civil.....	126	-	10	-	-	-	-
Electrical.....	148	5	1	1	1	6	1
Geological.....	44	2	1	2	-	4	-
Mechanical.....	190	13	-	5	-	9	1
Metallurgical.....	176	16	2	14	-	15	-
Mining.....	137	5	1	1	-	7	-
<b>Other Professions:</b>							
Architects.....	8	2	-	-	-	-	-
Agriculture.....	17	2	-	-	-	2	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	78	15	-	10	-	13	-
Commerce or Business Administration...	61	8	-	3	-	5	-
Forestry.....	1	-	-	-	-	-	-
Geology.....	14	2	1	-	-	3	-
Mathematics.....	6	-	-	-	-	2	-
Physics.....	10	3	-	-	-	-	-
Lawyers.....	5	-	-	-	-	-	-
Medical Officers....	1	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 11

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE NON-METALLIC MINERAL  
PRODUCTS INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	30	2	-	2	1	2	-
Civil.....	39	2	-	3	1	3	1
Electrical.....	13	-	-	-	-	-	-
Geological.....	-	-	-	-	-	-	-
Mechanical.....	26	4	-	5	-	4	1
Metallurgical.....	7	-	-	-	-	-	-
Mining.....	42	1	1	-	-	-	-
Other Professions:							
Agriculture.....	1	-	-	-	-	-	-
Biology.....	-	-	-	-	-	-	-
Ceramics.....	2	-	-	-	-	-	-
Chemistry.....	1	-	-	-	-	-	-
Commerce or Business Administration...	26	1	-	3	2	3	2
Forestry.....	1	-	-	-	-	-	-
Geology.....	1	-	-	-	-	-	-
Mathematics.....	-	-	-	-	-	-	-
Physics.....	1	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.





TABLE 12

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE PRINTING, PUBLISHING AND ALLIED  
TRADES INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	2						
Civil.....	1						
Electrical.....							
Geological.....							
Mechanical.....	1						
Metallurgical.....							
Mining.....							
Other Professions:							
Agriculture.....	5						
Biology.....							
Chemistry.....							
Commerce or Business Administration...	9						
Chartered Accountants	1						
Forestry.....							
Geology.....							
Mathematics.....							
Physics.....							
Lawyers.....							

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 12

## SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE PUBLIC UTILITY INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	7	-	-	-	-	1	-
Civil.....	114	6	-	8	-	7	-
Electrical.....	394	35	16	20	2	11	-
Geological.....	1	-	-	-	-	-	-
Mechanical.....	32	17	-	4	-	11	-
Metallurgical.....	1	-	-	-	-	-	-
Mining.....	3	-	1	-	-	-	-
Other Professions:							
Agriculture.....	8	-	-	-	-	-	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	-	-	-	-	-	-	-
Commerce or Business Administration.....	13	-	-	3	-	4	-
Chartered Accountants.	2	-	-	-	-	-	-
Forestry.....	-	-	-	-	-	-	-
Geology.....	3	-	-	-	-	-	-
Mathematics.....	-	-	-	-	-	-	-
Physics.....	-	-	-	-	-	-	-
Nurses.....	2	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 14

## SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE RUBBER PRODUCTS INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
<b>Engineering</b>							
Chemical.....	62	5	-	5	-	4	-
Civil.....	2	-	-	-	-	-	-
Electrical.....	6	7	-	2	-	2	-
Geological.....	2	2	-	2	-	-	-
Mechanical.....	61	11	-	6	-	5	-
Metallurgical.....	1	-	-	-	-	-	-
Mining.....	2	2	-	2	-	2	-
<b>Other Professions:</b>							
Agriculture.....	1	-	-	-	-	-	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	6	-	-	2	-	2	-
Commerce or Business Administration...	21	4	-	4	-	5	-
Forestry.....	-	-	-	-	-	-	-
Geology.....	-	-	-	-	-	-	-
Mathematics.....	-	-	-	-	-	-	-
Physics.....	-	-	-	-	-	-	-
Lawyers.....	3	-	-	-	-	-	-
Medical Officers.....	1	-	-	-	-	-	-
Nurses.....	1	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.





TABLE 15

## SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE SERVICES INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	46	6	1	11	-	7	3
Civil.....	550	48	24	59	4	35	2
Electrical.....	108	12	1	14	-	12	-
Geological.....	31	5	-	5	-	1	-
Mechanical.....	176	21	3	26	1	34	-
Metallurgical.....	16	2	-	1	-	-	-
Mining.....	12	-	2	-	-	-	-
Other Professions:							
Architects.....	172	20	3	15	3	11	-
Agriculture.....	30	4	3	-	1	-	-
Biology.....	48	1	-	2	-	2	-
Chemistry.....	35	14	4	4	-	5	-
Commerce or Business Administration.....	165	16	-	22	-	17	-
Chartered Accountants	440	29	20	37	20	38	20
Forestry.....	-	-	-	-	-	-	-
Geology.....	6	1	-	2	-	2	-
Mathematics.....	10	1	-	1	-	1	-
Physics.....	16	4	-	6	-	1	-
Pharmacists.....	3	-	-	2	-	-	-
Lawyers.....	4	-	-	-	-	-	-
Nurses.....	528	-	-	-	-	-	-
Medical Officers.....	122	14	-	36	-	13	-
Dieticians and Food Technologists.....	14	8	-	4	-	7	-
		1	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 16

## SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE TEXTILE INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	12	3	1	5	-	3	-
Civil.....	2	-	-	-	-	-	-
Electrical.....	8	-	-	-	-	-	-
Geological.....	2	-	-	-	-	-	-
Mechanical.....	24	1	-	3	-	2	-
Metallurgical.....	-	-	-	-	-	-	-
Mining.....	-	-	-	8	-	4	-
Other Professions:							
Agriculture.....	-	-	-	-	-	-	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	34	2	-	3	-	4	-
Commerce or Business Administration..	25	2	-	-	-	1	-
Chartered Accountants	1	-	-	-	-	-	-
Forestry.....	-	-	-	-	-	-	-
Geology.....	-	-	-	-	-	-	-
Mathematics.....	-	-	-	-	-	-	-
Physics.....	3	-	1	1	-	-	-
Nurses.....	6	2	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 17

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE TRANSPORTATION EQUIPMENT INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	14	-	-	1	-	1	-
Civil.....	42	2	-	1	-	1	-
Electrical.....	65	14	-	2	-	2	-
Geological.....	-	-	-	-	-	-	-
Mechanical.....	673	185	4	42	-	34	-
Metallurgical.....	23	2	-	1	-	1	-
Mining.....	2	-	-	-	-	-	-
Other Professions:							
Architects.....	6	-	-	-	-	-	-
Agriculture.....	-	-	-	-	-	-	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	5	1	-	3	-	3	-
Commerce or Business							
Administration....	180	12	-	16	-	8	-
Chartered Accountants	4	2	-	1	-	1	-
Forestry.....	1	-	-	-	-	-	-
Geology.....	-	-	-	-	-	-	-
Mathematics.....	6	2	-	-	-	-	-
Physics.....	8	2	-	-	-	-	-
Lawyers.....	4	-	-	-	-	-	-
Nurses.....	2	1	-	-	-	-	-
Medical Officers.....	3	1	1	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.





TABLE 18

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL<sup>(1)</sup> IN THE TRANSPORTATION, STORAGE AND COMMUNICATION INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employees	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	23	1	-	1	-	-	-
Civil.....	463	12	-	14	-	1	-
Electrical.....	601	50	-	69	-	24	-
Geological.....	4	1	-	-	-	-	-
Mechanical.....	143	6	-	8	-	2	-
Metallurgical.....	8	-	-	-	-	-	-
Mining.....	12	-	-	-	-	-	-
Other Professions:							
Architects.....	38	-	-	-	-	-	-
Agriculture.....	11	-	-	-	-	-	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	14	-	-	-	-	3	-
Commerce or Business Administration...	207	12	1	10	-	7	-
Chartered Accountants	12	3	-	1	-	1	-
Forestry.....	4	-	-	-	-	-	-
Geology.....	-	-	-	-	-	-	-
Mathematics.....	-	-	-	-	-	-	-
Physics.....	46	1	-	-	-	-	-
Lawyers.....	68	1	1	-	-	-	-
Medical Officers....	34	-	-	-	-	-	-
Arts.....	66	2	3	1	1	1	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 12

## SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE WHOLESALE AND RETAIL TRADE INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	87	3	3	5	-	3	-
Civil.....	45	1	3	2	2	-	-
Electrical.....	135	14	-	13	-	14	1
Geological.....	4	-	-	-	-	-	-
Mechanical.....	122	12	1	16	2	9	-
Metallurgical.....	6	1	-	-	-	-	-
Mining.....	3	-	-	-	-	-	-
Other Professions:							
Architects.....	8	-	-	-	-	-	-
Agriculture.....	49	4	-	7	-	4	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	12	1	-	3	-	2	-
Commerce or Business Administration...	258	54	4	71	-	71	-
Chartered Accountants	17	2	-	1	-	1	-
Forestry.....	2	-	-	-	-	1	-
Geology.....	-	-	-	-	-	1	-
Mathematics.....	8	1	-	-	-	1	-
Physics.....	7	-	-	-	-	-	-
Pharmacists.....	56	3	-	4	-	4	-
Lawyers.....	12	-	-	-	-	-	-
Medical Officers....	2	-	-	1	-	1	-
Arts.....	67	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 20

## SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) IN THE WOOD PRODUCTS INDUSTRY

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	1						
Civil.....	2						
Electrical.....	-						
Geological.....	-						
Mechanical.....	1						
Metallurgical.....	-						
Mining.....	-						
Other Professions:							
Agriculture.....	-						
Biology.....	-						
Chemistry.....	-						
Commerce or Business Administration...	2						
Forestry.....	4						
Geology.....	-						
Mathematics.....	-						
Physics.....	-						

(1) Includes university-trained personnel and members of recognized professional organizations.





TABLE 21

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) OF FIRMS WITH 50 OR LESS THAN 50 EMPLOYEES

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	22	5	1	3	-	3	-
Civil.....	222	19	19	23	-	17	-
Electrical.....	79	18	5	15	-	12	-
Geological.....	19	6	-	5	-	1	-
Mechanical.....	54	15	-	14	-	14	-
Metallurgical.....	5	3	-	2	-	1	-
Mining.....	5	2	2	2	-	2	-
Other Professions:							
Architects.....	92	14	2	9	3	7	-
Agriculture.....	34	2	2	2	-	1	-
Biology.....	27	-	-	1	-	1	-
Chemistry.....	34	7	6	3	-	3	-
Commerce or Business							
Administration.....	134	28	-	32	-	25	-
Chartered Accountants...	29	6	2	4	-	3	-
Forestry.....	-	-	-	-	-	-	-
Geology.....	5	1	-	2	-	2	-
Mathematics.....	3	1	-	1	-	1	-
Physics.....	8	1	-	4	-	1	-
Pharmacists.....	21	1	-	1	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 22

## SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) OF FIRMS WITH 51 TO 100 EMPLOYEES

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	51	6	-	6	-	10	-
Civil.....	150	17	4	22	-	17	-
Electrical.....	65	10	1	8	-	6	-
Geological.....	7	-	-	-	-	2	-
Mechanical.....	95	14	-	21	2	16	-
Metallurgical.....	6	2	-	2	-	3	-
Mining.....	11	-	-	1	-	1	-
Ceramic.....	2	-	-	-	-	-	-
Other Professions:							
Architects.....	32	3	1	3	-	4	-
Agriculture.....	13	2	2	2	-	2	-
Biology.....	-	-	-	-	-	-	-
Chemistry.....	29	4	-	2	-	3	-
Commerce or Business Administration.....	44	12	-	10	-	6	-
Forestry.....	2	-	-	-	-	-	-
Geology.....	5	-	-	-	-	-	-
Mathematics.....	8	-	-	1	-	2	-
Physics.....	3	-	1	-	-	-	-
Pharmacists.....	51	8	-	9	-	9	-
Medical Officers.....	1	-	-	-	-	-	-
Nurses.....	14	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 23

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL <sup>(1)</sup> OF FIRMS WITH 101 TO 200 EMPLOYEES

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	181	14	1	19	-	15	3
Civil.....	209	4	7	29	4	6	-
Electrical.....	90	4	5	11	-	4	-
Geological.....	5	-	-	-	-	-	-
Mechanical.....	215	29	5	27	-	36	-
Metallurgical.....	9	1	-	1	-	2	-
Mining.....	40	7	1	7	-	5	-
Other Professions:							
Architects.....	30	-	-	3	-	2	-
Agriculture.....	34	3	-	4	-	2	-
Biology.....	7	1	-	1	-	-	-
Chemistry.....	72	12	-	12	-	14	-
Commerce or Business							
Administration.....	67	9	1	13	-	11	-
Chartered Accountants..	63	3	-	3	-	5	-
Forestry.....	-	-	-	-	-	1	-
Geology.....	1	-	-	-	-	-	-
Mathematics.....	14	1	-	2	-	2	-
Physics.....	5	2	-	1	-	-	-
Pharmacists.....	69	8	-	6	-	6	-
Medical Officers.....	55	-	-	-	-	-	-
Nurses.....	1	-	-	-	-	-	-
Lawyers.....	3	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.





TABLE 24

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) OF FIRMS WITH 201 TO 400 EMPLOYEES

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	98	17	-	23	-	19	-
Civil.....	232	28	-	21	1	12	-
Electrical.....	214	28	4	21	-	15	-
Geological.....	45	7	-	10	-	7	-
Mechanical.....	287	22	19	35	-	27	-
Metallurgical.....	30	2	-	2	-	-	-
Mining.....	52	6	-	4	1	4	-
Other Professions:							
Architects.....	4	2	-	-	-	-	-
Agriculture.....	22	-	1	1	-	-	-
Biology.....	2	-	-	-	-	-	-
Chemistry.....	69	1	-	1	-	3	-
Commerce or Business Administration.....	250	26	2	24	-	19	-
Chartered Accountants..	359	20	20	30	20	30	20
Forestry.....	15	-	-	-	1	-	-
Geology.....	81	39	-	12	1	13	1
Mathematics.....	68	5	-	3	2	5	-
Physics.....	109	17	16	21	2	21	-
Pharmacists.....	79	3	-	5	-	4	-
Medical Officers.....	5	-	-	2	-	2	-
Nurses.....	72	-	-	10	-	1	-
Lawyers.....	25	4	-	6	-	5	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 25

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL <sup>(1)</sup> OF FIRMS WITH 401 TO 800 EMPLOYEES

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	314	36	1	29	2	24	-
Civil.....	206	22	5	24	10	12	1
Electrical.....	297	15	1	27	2	16	1
Geological.....	40	2	2	4	-	2	-
Mechanical.....	442	57	3	43	5	40	-
Metallurgical.....	53	3	-	4	1	2	-
Mining.....	129	8	3	9	-	6	-
Other Professions:							
Architects.....	5	-	-	-	-	-	-
Agriculture.....	49	3	-	6	-	3	-
Biology.....	6	-	-	1	-	-	-
Chemistry.....	130	5	-	9	-	7	-
Commerce or Business Administration.....	330	43	5	56	-	57	-
Chartered Accountants...	9	3	-	2	-	2	-
Forestry.....	48	4	-	3	1	2	-
Geology.....	96	22	-	13	-	14	-
Mathematics.....	88	4	-	6	-	8	-
Physics.....	128	14	-	13	-	10	-
Pharmacists.....	112	1	-	61	-	63	-
Medical Officers.....	25	-	-	-	-	-	-
Nurses.....	316	-	-	-	-	-	-
Lawyers.....	45	4	-	14	-	4	-
				3	-	5	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 26

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1) OF FIRMS WITH 801 TO 1,600 EMPLOYEES

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	249	16	7	17	1	19	-
Civil.....	239	14	5	14	4	19	3
Electrical.....	293	18	-	22	-	19	-
Geological.....	91	8	-	6	-	5	-
Mechanical.....	399	30	23	39	1	27	1
Metallurgical.....	34	-	-	4	-	6	-
Mining.....	98	3	-	10	-	7	-
Other Professions:							
Architects.....	7	-	-	-	-	-	-
Agriculture.....	54	2	2	4	1	7	-
Biology.....	2	-	-	-	-	-	-
Chemistry.....	131	13	1	13	-	8	-
Commerce or Business Administration.....	252	24	-	42	2	45	4
Chartered Accountants...	5	-	1	2	-	-	-
Forestry.....	65	8	1	3	-	2	-
Geology.....	62	7	-	4	-	4	-
Mathematics.....	5	3	-	2	-	2	-
Physics.....	31	2	1	3	-	3	-
Medical Officers.....	4	-	-	1	-	-	-
Nurses.....	9	-	-	-	-	-	-
Lawyers.....	21	-	-	-	-	-	-
Pharmacists.....	3	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.





TABLE 27

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL <sup>(1)</sup> OF FIRMS WITH 1,601 TO 3,200 EMPLOYEES

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
<b>Engineering:</b>							
Chemical.....	210	19	2	16	-	14	-
Civil.....	202	22	3	8	-	2	-
Electrical.....	380	70	-	41	2	37	-
Geological.....	22	2	-	2	-	1	-
Mechanical.....	407	46	1	53	-	52	-
Metallurgical.....	65	9	-	3	-	-	-
Mining.....	123	26	1	24	-	23	-
<b>Other Professions:</b>							
Architects.....	19	1	-	-	-	-	-
Agriculture.....	9	1	-	-	-	-	-
Biology.....	9	1	-	-	-	-	-
Chemistry.....	144	22	2	21	-	20	-
Commerce or Business Administration.....	277	33	-	42	-	42	-
Chartered Accountants...	6	-	-	-	-	-	-
Forestry.....	53	4	-	4	-	2	-
Geology.....	3	-	-	-	-	-	-
Mathematics.....	47	3	-	4	-	3	-
Physics.....	36	5	-	1	-	1	-
Medical Officers.....	4	-	-	-	-	-	-
Nurses.....	10	4	-	-	-	-	-
Lawyers.....	16	-	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 28

SURVEY SUMMARY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL<sup>(1)</sup> OF FIRMS WITH OVER 3,200 EMPLOYEES

Field of Specialization	Number Employed at January 1, 1954	During 1954		During 1955		During 1956	
		Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed	Expected increase in total number employed	Expected decrease in total number employed
Engineering:							
Chemical.....	432	32	7	42	-	35	-
Civil.....	739	16	12	19	-	5	-
Electrical.....	1,594	148	13	88	1	55	1
Geological.....	52	4	1	3	-	5	-
Mechanical.....	1,232	223	7	65	1	59	3
Metallurgical.....	207	20	2	17	-	20	-
Mining.....	146	5	1	1	-	6	-
Other Professions:							
Architects.....	56	2	-	-	-	-	-
Agriculture.....	66	4	-	2	-	4	-
Biology.....	15	-	-	1	-	1	-
Chemistry.....	151	17	-	18	-	19	-
Commerce or Business							
Administration.....	570	42	1	43	1	42	-
Chartered Accountants..	36	4	-	3	-	2	-
Forestry.....	173	8	2	2	-	3	-
Geology.....	15	2	1	-	-	3	-
Mathematics.....	32	8	-	1	-	3	-
Physics.....	147	15	-	5	-	11	-
Pharmacists.....	6	-	-	2	-	-	-
Medical Officers.....	100	9	1	2	-	5	-
Nurses.....	140	14	-	12	-	8	-
Lawyers.....	89	-	1	-	-	-	-
Applied Science.....	7	1	-	-	-	-	-

(1) Includes university-trained personnel and members of recognized professional organizations.



TABLE 29

NUMBER OF FIRMS REPORTING REASONS FOR THE INCREASE IN THEIR TOTAL REQUIREMENTS OF PROFESSIONALLY-TRAINED PERSONNEL DURING 1952 and 1953

Industry	Total Firms Reporting	General Expansion			Resource and New Product Development			Improved Production Methods or Services			Expansion of Research Activities			Defence Production Program		
		1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice
Construction.....	68	25	3	1	-	2	1	1	3	-	-	-	1	-	-	1
Electrical Apparatus.....	41	20	-	3	3	7	3	-	4	2	-	2	4	-	2	4
Food & Tobacco Products.....	29	10	1	1	2	2	-	1	3	-	-	-	2	-	-	2
Transportation & Communication...	22	10	1	1	-	8	-	2	-	-	-	-	6	-	-	6
Chemical & Petroleum Products...	62	26	6	1	3	-	4	2	2	1	4	4	-	1	3	-
Finance, Insurance & Real Estate...	28	19	1	-	-	6	5	3	7	-	2	2	2	2	4	-
Trade (Wholesale & Retail).....	51	27	3	1	1	2	2	8	7	3	5	5	5	5	4	2
Forestry & Paper Products.....	53	14	7	1	2	5	2	1	2	-	1	1	2	1	3	5
Rubber Products.....	14	4	-	1	3	3	3	1	1	-	-	2	-	-	1	-
Non-Metallic Mineral Products....	18	6	2	1	1	3	2	1	2	1	-	1	-	-	2	-
Non-Ferrous Metal Products.....	17	7	2	-	-	3	-	-	1	-	-	2	-	-	1	-
Printing & Publishing.....	6	3	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Mining, Quarrying & Oil Wells....	56	19	3	-	2	4	1	7	1	1	1	3	6	1	2	6
Iron & Steel Products.....	116	51	5	2	6	15	6	2	12	2	1	6	2	1	6	1
Transportation Equipment.....	36	11	6	1	6	1	4	2	5	4	-	2	2	-	-	1
Public Utilities.....	18	7	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Wood Products.....	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Textile Products.....	11	3	-	1	3	3	1	3	2	2	1	3	1	1	3	1
Services.....	122	59	6	-	2	3	-	3	3	-	-	-	-	-	-	-
Miscellaneous.....	2	-	1	-	-	-	1	1	-	-	-	-	-	-	-	-
Size of Firms by Employees																
50 and under.....	106	46	4	1	3	3	1	2	4	1	1	2	2	2	2	2
51 to 100.....	68	28	3	-	-	2	3	2	5	1	1	2	1	-	6	1
101 to 200.....	100	36	7	4	9	10	5	3	6	5	2	7	4	1	7	4
201 to 400.....	146	52	8	3	7	10	4	9	6	2	2	6	5	2	7	5
401 to 800.....	154	55	8	1	6	18	10	4	13	5	3	5	6	3	4	6
801 to 1600.....	97	39	10	3	3	12	6	7	9	1	7	7	7	3	4	3
1601 to 3200.....	60	33	4	1	2	7	6	4	6	2	3	4	3	-	4	2
Over 3200.....	43	22	2	1	2	2	5	1	11	3	-	-	2	-	2	2
Total.....	774	321	46	14	32	64	40	33	60	20	18	35	30	18	31	29





TABLE 30

NUMBER OF FIRMS REPORTING REASONS FOR THE EXPECTED INCREASE IN THEIR TOTAL REQUIREMENTS OF PROFESSIONALLY-TRAINED PERSONNEL DURING 1954, 1955 and 1956

Industry	Total Firms Reporting	General Expansion			Resource and New Product Development			Improved Production Methods			Expansion of Research			Defense Production Program		
		1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice
Construction.....	68	26	3	-	3	1	2	1	4	1	-	1	1	1	1	1
Electrical Apparatus.....	41	19	4	1	4	10	1	1	3	4	-	2	4	-	1	5
Food & Tobacco Products.....	29	10	1	2	1	2	-	1	4	1	-	-	1	-	1	-
Transportation & Communication...	22	10	1	-	-	-	-	1	3	-	-	-	-	-	1	-
Chemical & Petroleum Products...	62	27	4	2	3	11	4	1	2	-	3	5	2	1	-	-
Finance, Insurance & Real Estate	28	10	-	-	-	1	-	-	1	-	-	3	-	-	-	-
Trade (Wholesale & Retail).....	51	22	3	-	1	8	-	2	2	4	-	1	2	-	1	-
Forestry & Paper Products.....	53	12	5	3	2	7	3	10	6	4	5	6	7	-	-	-
Rubber Products.....	14	4	1	-	1	-	1	-	1	1	1	1	1	-	-	-
Non-Metallic Mineral Products...	18	6	3	-	1	3	2	1	2	-	2	-	-	-	-	-
Non-Ferrous Metal Products.....	17	7	2	-	1	9	-	1	-	5	-	-	-	-	-	-
Printing & Publishing.....	6	2	-	-	-	-	-	-	-	4	-	-	-	-	-	-
Mining, Quarrying & Oil Wells...	56	15	-	1	3	4	-	2	2	2	-	1	1	1	1	1
Iron & Steel Products.....	116	36	6	1	9	12	5	9	10	-	5	5	6	-	1	1
Transportation Equipment.....	36	10	6	3	7	2	3	3	5	-	2	2	-	4	1	-
Public Utilities.....	18	8	1	1	1	2	1	-	-	1	-	-	-	-	1	-
Wood Products.....	4	1	-	1	-	1	1	2	-	1	-	1	-	-	-	-
Textile Products.....	11	3	-	-	2	3	-	3	3	-	3	3	2	-	-	2
Services.....	122	51	6	-	1	4	-	-	2	-	-	-	-	-	-	-
Miscellaneous.....	2	1	1	-	-	-	-	-	1	-	-	-	-	-	-	-
Size of Firms by Employees																
50 and under.....	106	46	3	1	2	6	1	1	3	-	2	3	1	-	2	3
51 to 100.....	68	32	2	-	3	9	3	2	6	2	2	4	2	-	-	-
101 to 200.....	100	36	7	3	8	12	4	1	4	4	1	5	4	1	1	-
201 to 400.....	146	50	10	2	7	15	2	10	4	8	2	3	5	-	-	2
401 to 800.....	154	49	7	1	8	22	3	6	7	9	3	2	7	-	1	3
801 to 1600.....	97	34	6	4	5	6	5	10	12	3	5	7	7	2	2	-
1601 to 3200.....	60	28	7	1	4	5	2	5	7	1	3	5	5	2	1	-
Over 3200.....	43	17	2	2	2	5	2	3	8	4	3	2	1	1	1	-
Total.....	774	292	44	14	39	80	23	38	51	33	21	31	32	6	8	10



TABLE 31

NUMBER OF FIRMS REPORTING REASONS FOR THE DECREASE IN THEIR TOTAL REQUIREMENTS OF PROFESSIONALLY-TRAINED PERSONNEL DURING 1952 and 1953

Industry	Total Firms Reporting	Slackening Business Activity			Declining Rate of Technological Innovation or Resource Development			Defence Contracts Declining			Better Utilization of Professional Personnel		
		1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice
Construction.....	68	4	1	nil	-	nil	nil	1	-	-	-	-	nil
Electrical Apparatus.....	41	-	-	-	-	-	-	-	-	-	-	-	-
Food & Tobacco Products.....	29	-	-	-	-	-	-	-	-	-	-	-	-
Transportation & Communication....	22	1	-	-	-	-	-	-	-	-	-	-	-
Chemical & Petroleum Products.....	62	1	-	-	-	-	-	-	1	-	-	-	-
Finance, Insurance & Real Estate..	28	1	-	-	-	-	-	-	-	-	-	-	-
Trade (Wholesale & Retail).....	51	1	-	-	-	-	-	-	-	-	-	-	-
Forestry & Paper Products.....	53	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Products.....	14	-	-	-	-	-	-	-	-	-	-	-	-
Non-Metallic Mineral Products.....	18	-	-	-	-	-	-	-	-	-	-	-	-
Non-Ferrous Metal Products.....	17	-	-	-	-	-	-	-	-	-	-	-	-
Printing & Publishing.....	6	-	-	-	-	-	-	-	-	-	-	-	-
Mining, Quarrying & Oil Wells.....	56	3	-	-	1	-	-	-	-	-	-	2	-
Iron & Steel Products.....	116	5	-	-	-	-	1	-	-	1	-	-	-
Transportation Equipment.....	36	-	-	-	-	-	-	-	-	-	-	-	-
Public Utilities.....	18	-	-	-	-	-	-	-	-	-	-	-	-
Wood Products.....	4	-	-	-	-	-	-	-	-	-	-	-	-
Textile Products.....	11	-	-	-	-	-	-	-	-	-	-	-	-
Services.....	122	4	3	-	1	-	-	1	1	-	1	-	-
Miscellaneous.....	2	-	-	-	-	-	-	-	-	-	-	-	-
Size of Firms by Employees													
50 and under.....	106	6	1	-	1	-	-	-	-	-	-	-	-
51 to 100.....	68	1	2	-	-	-	-	1	-	-	1	1	-
101 to 200.....	100	-	-	-	-	-	-	-	-	-	-	-	-
201 to 400.....	146	4	1	-	1	-	1	-	1	-	-	-	-
401 to 800.....	154	5	-	-	-	-	-	-	-	-	-	-	-
801 to 1600.....	97	3	-	-	-	-	-	-	-	1	-	1	-
1601 to 3200.....	60	1	-	-	-	-	-	-	-	-	-	-	-
Over 3200.....	43	-	-	-	-	-	-	-	-	-	-	-	-
Total.....	774	20	4	-	2	-	-	2	1	1	1	2	-



TABLE 22

NUMBER OF FIRMS REPORTING REASONS FOR THE EXPECTED DECREASE IN THEIR TOTAL REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL DURING 1954, 1955 and 1956

Industry	Total Firms Reporting	Slackening Business Activity			Declining Rate of Technological Innovation or Resource Development			Defence Contracts Declining			Reduction of Research			Better Utilization of Professional Personnel		
		1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice	1st Choice	2nd Choice	3rd Choice
Construction.....	68	4	-	-	-	-	-	-	1	-	1	-	-	-	-	-
Electrical Apparatus.....	41	1	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Food & Tobacco Products.....	29	-	-	-	-	-	-	-	-	-	-	-	-	1	-	-
Transportation & Communication...	22	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chemical & Petroleum Products...	62	-	-	1	1	-	-	1	-	-	-	-	-	-	-	1
Finance, Insurance & Real Estate.	28	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trade (Wholesale & Retail).....	51	3	-	-	1	1	-	1	-	-	-	-	-	-	-	1
Forestry & Paper Products.....	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubber Products.....	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-Metallic Mineral Products....	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Non-Ferrous Metal Products.....	17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Printing & Publishing.....	6	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Mining, Quarrying & Oil Wells....	56	3	1	-	1	-	-	-	-	-	-	-	-	-	-	-
Iron & Steel Products.....	116	6	1	-	-	-	-	1	1	2	-	1	1	1	1	1
Transportation Equipment.....	36	-	1	-	-	-	1	1	-	-	-	-	-	-	-	-
Public Utilities.....	18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Wood Products.....	4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Textile Products.....	11	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-
Services.....	122	5	2	-	-	-	-	4	-	-	-	-	-	-	-	-
Miscellaneous.....	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-
<u>Size of Firms by Employees</u>																
50 and under.....	106	8	-	-	1	-	-	2	1	-	-	1	-	-	-	-
51 to 100.....	68	1	3	-	1	-	-	2	-	-	-	-	-	-	-	1
101 to 200.....	100	3	-	-	-	-	-	-	-	1	-	-	-	-	-	-
201 to 400.....	146	3	1	-	-	-	1	1	1	-	-	1	-	-	1	1
401 to 800.....	154	4	1	-	1	1	1	2	1	1	-	1	-	1	-	1
801 to 1600.....	97	3	-	-	-	-	-	-	1	-	1	-	-	1	-	-
1601 to 3200.....	60	2	-	-	-	-	-	-	1	-	-	-	-	-	-	-
Over 3200.....	43	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Total.....	774	24	5	1	3	1	2	7	5	2	1	3	1	2	1	3





TABLE 33

NUMBER OF FIRMS REPORTING DIFFICULTIES IN RECRUITING PROFESSIONALLY-TRAINED PERSONNEL DURING 1952 and 1953

Industry	Total Firms Reporting	Architecture	Biology	Chemistry	Civil Engineering	Electrical Engineers	Geology	Aeronautical Engineers	Commerce	Nurses	Arts	Mechanical Engineering	Mining and Metallurgy	Medical Officer	Physicists	Ceramic Engineers	Agriculture	Mathematics	Pharmacists	Petroleum Engineers	All Engineers
TOTAL BY PROFESSIONS.....	774	9	2	39	24	57	4	2	18	8	3	72	24	5	7	1	8	6	5	5	6
Construction.....	68				5	2			1			4									
Electrical Apparatus.....	41	1		1		18						6					1				
Food & Tobacco Products.....	29			5	2	1		1				2					1				
Transportation & Communication.....	22				1	5						1					1				
Chemical & Petroleum Products.....	62			11		3			2			3					2				
Finance, Insurance & Real Estate.....	28								6						1						
Trade (Wholesale & Retail).....	51			1		3			1			3	1		1		1				1
Forestry & Paper Products.....	53			9	1	4						11									
Rubber Products.....	14			2	1							5									
Non-Metallic Mineral Products.....	18			2								1									
Non-Ferrous Metal Products.....	17			3								2									
Printing & Publishing.....	6																				
Mining, Quarrying & Oil Wells.....	56				2	1				1		1	12	2	2		2	1			
Iron & Steel Products.....	116			1	4	3			1			15	2								2
Transportation Equipment.....	36					3						9									
Public Utilities.....	18				1	7															
Wood Products.....	4																				
Textile Products.....	11			1						7		1			3		1				1
Services.....	122	8		2	7	7			6			8	3		3						1
Miscellaneous.....	2																				
Size of Firms by Employees																					
50 and under.....	106	7		3	3	7			9			7	2		2		3				1
51 to 100.....	68	1		5	2	6				1		8	1				1				1
101 to 200.....	100			2	1	4			1	2		9	2		1		3				3
201 to 400.....	146	1		3	6	7			1	1		7	3		1		3	1			1
401 to 800.....	154			9	2	7			5	2		15	11		2		1				
801 to 1600.....	97			7	3	5			1	1		8	2		1						
1601 to 3200.....	60			4	5	10			1	1		6	1								
Over 3200.....	43			6	2	9						12	2								1



TABLE 24

NUMBER OF FIRMS EXPECTING DIFFICULTIES IN RECRUITING PROFESSIONALLY-TRAINED PERSONNEL DURING 1954, 1955 and 1956

Industry	Total Firms Reporting	Architecture	Biology	Chemistry	Civil Engineers	Electrical Engineering	Geology	Aeronautical Engineering	Commerce	Nurses	Arts	Mechanical Engineering	Mining and Metallurgy	Medical Officers	Physics	Ceramics	Agriculture	Structural	Mathematics
TOTAL BY PROFESSIONS.....	774	3		24	13	37	4	1	10	7	2	44	20	3	5	1	4	1	2
Construction.....	68			1	2	1						3							
Electrical Apparatus.....	41			1		13			1			2							
Food & Tobacco Products.....	29			1					1										
Transportation & Communication.....	22					3			1			1							
Chemical & Petroleum Products.....	62			8		1			2			2							
Finance, Insurance & Real Estate.....	28								3										
Trade (Wholesale & Retail).....	51			1		1							1						
Forestry & Paper Products.....	53			6		2						5							
Rubber Products.....	14											3							
Non-Metallic Mineral Products.....	18			1	1							1	2						
Non-Ferrous Metal Products.....	17			2									4						
Printing & Publishing.....	6																		
Mining, Quarrying & Oil Wells.....	56				2	1				1		1	10						
Iron & Steel Products.....	116			1	1	4						10	2						
Transportation Equipment.....	36				1	4						9							
Public Utilities.....	18				1	4						1							
Wood Products.....	4																		
Textile Products.....	11			2	4	6			3	6		6	1						
Services.....	122																		
Miscellaneous.....	2																		
Size of Firms by Employees																			
50 and under.....	106			3	2	6			5			7	1						
51 to 100.....	68			1	1	4						3	2						
101 to 200.....	100			3	1	2						5	3						
201 to 400.....	146			1	4	4				2		3	3						
401 to 800.....	154			6	1	4			3	1		9	8						
801 to 1600.....	97			3	1	2			1	2		3	2						
1601 to 3200.....	60			2	2	7			1	1		5	2						
Over 3200.....	43			5	1	8				1		9	2						



TABLE 35

NUMBER OF FIRMS REPORTING REASONS FOR DIFFICULTIES IN RECRUITING PROFESSIONALLY-TRAINED PERSONNEL DURING 1952 and 1953,  
SHOWN AS PERCENTAGES OF TOTAL FIRMS REPORTING

Industry	Total Firms Reporting	Shortage of Professionally-trained Personnel %	Applicants Considered Unsatisfactory %	Salary Expectations above rates paid by firm %
Construction.....	68	13	7	6
Electrical Apparatus.....	41	41	17	10
Food & Tobacco Products.....	29	10	3	7
Transportation & Communication.....	22	27	-	9
Chemical & Petroleum Products.....	62	24	31	6
Finance, Insurance & Real Estate.....	28	25	7	18
Trade (Wholesale & Retail).....	51	28	10	10
Forestry & Paper Products.....	53	21	17	6
Rubber Products.....	14	14	14	14
Non-Metallic Mineral Products.....	18	33	22	-
Non-Ferrous Metal Products.....	17	29	12	18
Printing & Publishing.....	6	-	-	-
Mining, Quarrying & Oil Wells.....	56	30	16	4
Iron & Steel Products.....	116	17	9	6
Transportation Equipment.....	36	28	11	3
Public Utilities.....	18	33	-	5
Wood Products.....	4	-	-	-
Textile Products.....	11	27	9	-
Services.....	122	31	11	12
Miscellaneous.....	2	-	-	-
Size of Firms by Employees				
50 and under.....	106	31	13	10
51 to 100.....	68	26	26	7
101 to 200.....	100	17	9	4
201 to 400.....	146	18	8	6
401 to 800.....	154	23	12	7
801 to 1600.....	97	19	8	10
1601 to 3200.....	60	33	13	12
Over 3200.....	43	49	16	7
Total.....	774	24	12	8





TABLE 36

NUMBER OF FIRMS REPORTING REASONS FOR EXPECTING DIFFICULTIES IN RECRUITING PROFESSIONALLY-TRAINED PERSONNEL DURING 1954, 1955 and 1956  
SHOWN AS PERCENTAGES OF THE TOTAL FIRMS REPORTING

Industry	Total Firms Reporting	Shortage of Professionally-Trained Personnel %	Applicants Considered Unsatisfactory %	Salary Expectations above rates paid by firm %
Construction.....	68	9	3	-
Electrical Apparatus.....	41	39	12	10
Food & Tobacco Products.....	29	3	-	7
Transportation & Communication.....	22	14	-	9
Chemical & Petroleum Products.....	62	19	14	-
Finance, Insurance & Real Estate.....	28	18	4	11
Trade (Wholesale & Retail).....	51	22	6	6
Forestry & Paper Products.....	53	9	9	2
Rubber Products.....	14	21	14	2
Non-Metallic Mineral Products.....	18	22	11	6
Non-Ferrous Metal Products.....	17	29	-	6
Printing & Publishing.....	6	-	-	-
Mining, Quarrying & Oil Wells.....	56	25	9	2
Iron & Steel Products.....	116	12	4	2
Transportation Equipment.....	36	31	3	-
Public Utilities.....	18	22	-	11
Wood Products.....	4	25	-	25
Textile Products.....	11	18	-	-
Services.....	122	25	8	-
Miscellaneous.....	2	-	-	-
<u>Size of Firms by Employees</u>				
50 and under.....	106	23	8	9
51 to 100.....	68	22	13	6
101 to 200.....	100	14	4	2
201 to 400.....	146	16	5	3
401 to 800.....	154	17	6	5
801 to 1600.....	97	15	6	6
1601 to 3200.....	60	25	3	3
Over 3200.....	43	35	7	2
Total.....	774	19	6	5



BIENNIAL SURVEY OF REQUIREMENTS  
FOR  
PROFESSIONAL PERSONNEL

Reasons for Survey:

- (1) To provide authentic information for industry, professional associations, universities, governments and other interested groups on the needs of employers for professionally trained personnel in Canada;
- (2) To assist in comparing current trends in university enrolments as against future requirements for professional personnel;
- (3) To help counsellors to provide more effective vocational and educational guidance in schools and colleges;
- (4) To help students plan their education and training more effectively.

(Please see last page for explanatory notes.)

Conducted by:

Executive and Professional Division of the National Employment Service  
of the Unemployment Insurance Commission and the Economics and  
Research Branch of the Canadian Department of Labour.

SURVEY OF CANADIAN REQUIREMENTS FOR PROFESSIONALLY-TRAINED PERSONNEL (1)

(Please do not include any university students employed for the summer months only)

Field of Specialization	Number Employed at January 1, 1954	During 1954			During 1955			During 1956		
		Expected net increase in total number employed	Expected net decrease in total number employed	Number expected to retire permanently	Expected net increase in total number employed	Expected net decrease in total number employed	Number expected to retire permanently	Expected net increase in total number employed	Expected net decrease in total number employed	Number expected to retire permanently
Engineering:										
Chemical.....										
Civil.....										
Electrical.....										
Geological.....										
Mechanical.....										
Metallurgical.....										
Mining.....										
Other Engineers - (Please specify)										
.....										
.....										
Agriculture.....										
Biology.....										
Chemistry.....										
Commerce or Business Administration...										
Forestry.....										
Geology.....										
Mathematics.....										
Physics.....										
Other - (Please specify)										
.....										
.....										
.....										

(1) Includes university-trained personnel and members of recognized professional organizations.

(2) By "net" is meant all hirings less all separations including retirements during the year.



2. Please indicate, in order of importance by using numbers, the main factors responsible for an increase or decrease in your total requirements for professionally-trained personnel during the past two years (1952 and 1953) and expected in the three years, 1954 through 1956.

During Past Two Years (1952 and 1953)

If increase please number in order of importance in brackets below:

- ( ) General expansion of your business
- ( ) Resource or new product development
- ( ) Improved production methods or services
- ( ) Expansion of research activities
- ( ) Defence production program
- ( ) Other (Please specify)
- ( )
- ( )

During Three Years (1954, 1955 & 1956)

If increase please number in order of importance in brackets below:

- ( )
- ( )
- ( )
- ( )
- ( )
- ( )
- ( )
- ( )

If decrease please number in order of importance in brackets below:

- ( ) Slackening activity in your business
- ( ) Declining rate of technological innovation or resource development
- ( ) Work on defence contracts declining
- ( ) Reduction of research activities
- ( ) Better utilization of professional personnel
- ( ) Other (Please specify)
- ( )
- ( )

If decrease please number in order of importance in brackets below:

- ( )
- ( )
- ( )
- ( )
- ( )
- ( )
- ( )
- ( )

3. (a) Have you experienced any difficulties in recruiting any categories of professionally-trained personnel in the past two years? Yes..( ) No..( ).  
(If yes please specify categories).....

- (b) Do you anticipate any difficulties in recruiting any categories of professionally-trained personnel in the next three years? Yes..( ) No..( ).  
(If yes please specify categories).....

4. If you have experienced or expect to experience difficulties in recruiting professionally-trained personnel, please check ( ) below the reasons for these difficulties:

	<u>In 1952 &amp; 1953</u>	<u>In 1954, 1955 &amp; 1956</u>
a Shortage of such personnel.....	( )	( )
b Applicants considered unsatisfactory.....	( )	( )
c Salary expectations above rates paid by firm.....	( )	( )
d Other (Please specify).....	( )	( )
.....	( )	( )
.....	( )	( )
.....	( )	( )
.....	( )	( )

Total number of all employees as of January 1, 1954 \_\_\_\_\_

Name of firm \_\_\_\_\_ Name and position of person answering questionnaire \_\_\_\_\_

Address \_\_\_\_\_

Date \_\_\_\_\_

If from your experience you have any opinion concerning amount and adequacy of university training, utilization of professional personnel, etc. we would appreciate your comments. Please use space at top of page 4.



### Explanatory Notes

Question (1) is designed to obtain estimates regarding anticipated opportunities in your organization for professionally trained personnel in 1954, 1955 and 1956. Future circumstances that cannot be foreseen at the moment may show your estimates either to be too high or too low, but estimates made by employers are more accurate than those gained in other ways.

Question (2) is designed to determine the factors resulting in an increase or a decrease in your requirements for professionally trained personnel for the 5 years 1952 through 1956. If other factors than those listed are important we would appreciate your listing them as well.

Question (3) is intended to give information on the specific types of professionally trained personnel that have been or are expected to be in short supply, and Question (4) is intended to determine the reasons, in your opinion, for the shortage.

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The information furnished by you will be regarded as confidential and figures from individual firms will not be disclosed.

Please be assured of our appreciation for your help with this survey. Results of this survey will be made available to any firm requesting them. We hope that you will return the completed form within the next 10 days to:



